

The CORPS OF ENGINEERS
in the
1852 : *Nation's Capital* : 1952

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A Historical Summary
of
THE WORK OF THE CORPS OF ENGINEERS
in
WASHINGTON, D.C. AND VICINITY
1852 - 1952

Prepared by
THE WASHINGTON ENGINEER DISTRICT

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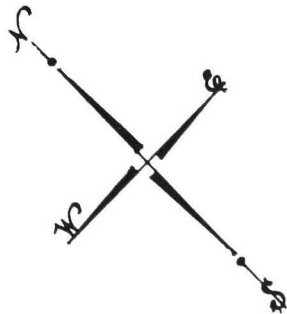
1952

LOCATION MAP

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The map on the opposite page shows the location of the principal projects participated in by the Corps of Engineers in Washington and its environs.

Institute
of Pathology



Soldiers'
Home



Mc Millan
Filter Plant



Government
Printing Office



Pension Office



Old Post Office



Library of
Congress



Dome and Wings
of Capitol



Old State, War,
and Navy Bldg



Old National
Museum



Washington Monument



Lincoln
Memorial



Fort
McNair



Washington
Park



Old 14th St
Highway Bridge

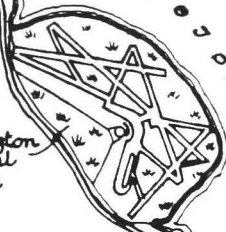


Columbia Island

Pentagon



Washington
National
Airport



Mt Vernon
Memorial Highway

Botling Field

Parleyway to Andrews Field



Anacostia River



Anacostia Levee



Anacostia Park



Key Bridge



Georgetown
Reservoir



Dalacarla
Filter Plant



CORPS OF ENGINEERS
IN THE
NATIONS CAPITAL



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INTRODUCTION

In the building up of the Nation's Capital, many men have given their dreams and their energy. This book traces only a small thread in this stream of effort - the part of the Corps of Engineers in the transformation of Washington from the "Great Serbonian Bog" of its earlier days to its present position as a focal point of world attention.

The story begins a hundred years ago. In 1852, Congress directed that there be undertaken "surveys, projects and estimates for determining the best means of affording the cities of Washington and Georgetown an unfailing and abundant supply of good and wholesome water." In 1853, Lieutenant of Engineers Montgomery C. Meigs made his report. He spoke of the virtues of water with considerable feeling, or to quote him: "the same feeling that makes the rude but devout Arab invoke the blessings of Allah upon the builder of the murmuring fountain." He recommended that the city's water supply be taken from above Great Falls on the Potomac River and conveyed to it by gravity throughout. He rejected the scheme to use Rock Creek as a source. His estimate of cost was one million nine hundred and twenty-one thousand dollars, for which he guaranteed an "everlasting daily supply of 36 million gallons." Meigs was a colorful character. He fought with the Secretary of War, and was banished to Key West only to be recalled by Congress because he alone had been designated by name to pay the bills. He had his name cast into the riser of each iron step of the spiral staircases that lead to the pipe chambers. He built the longest stone arch bridge in the world to carry the conduit over Cabin John Creek, and he put Jefferson Davis' name on it. This, the Secretary of Interior chiselled off during the Civil War. He also directed the construction of the dome and the wings of the Capitol, an addition to the Old Post Office, the National Museum, and the Pension Building.

Less spectacular personalities followed, and organizations rather than individuals took up the burden of the work. In 1873, an office for direction of the Washington Aqueduct and a pipe yard and workshops were

built at Twenty-eighth Street and Pennsylvania Avenue, Northwest, on the right bank of Rock Creek. A report on the completion of this office stated: "In the workshop at this point a 'band saw' and grindstones have been set, also a 10-inch turbine to work them." In 1904, this Washington Aqueduct office was consolidated with the present Washington Engineer District.

In 1867, Major N. Michler became the first officer of the Corps of Engineers in charge of the Office of Public Buildings and Grounds in the District of Columbia, pursuant to an Act of Congress abolishing the office of Commissioner of Public Buildings and placing the duties thereof under the Chief of Engineers. Local river and harbor work, bridges and other special assignments were included. Notable works were accomplished under the supervision of Colonel Thos. Lincoln Casey, such as the construction of the Washington Monument, the State, War and Navy Building, the Library of Congress, the Army Medical Museum, and the Garfield Statue and pedestal.

Colonel Peter C. Hains took charge of the Washington Engineer District in 1882. During his tenure came the improvement of the Potomac River, creation of Potomac Park and the Tidal Basin, construction, repair and remodeling of bridges, and other special assignments not performed by the Office of Public Buildings and Grounds.

During the decades 1880 to 1900, the old Aqueduct Bridge became the property of the United States and the first studies were made for the Mt. Vernon Memorial Highway; the monument at Wakefield was constructed; Fort Hunt, Virginia, and Fort Washington, Maryland, were made formidable coast defenses; and a large new printing plant was built for the Government Printing Office.

Since 1878, an officer of the Corps of Engineers, with a staff of junior officers, has been assigned by the President of the United States to serve as one of the three commissioners administering the government of the District of Columbia. This book does not cover the many works accomplished under the District of Columbia government.

The first half of the twentieth century records such achievements as the monument at Point Lookout, Maryland, construction of the piers for the Jamestown Exposition,

the Francis Scott Key Bridge, studies for the Memorial Bridge, reclamation and development of the Anacostia River and flats, marking of battlefields of the Civil War, construction of the Mt. Vernon Memorial Highway, the Washington National Airport, the Savage River Dam, eradication of water chestnuts in the Potomac River, and rehabilitation of the Washington water front. In this period the Lincoln Memorial and the Memorial Bridge were erected under the supervision of the officer in charge of Public Buildings and Grounds.

From 1940 to 1952, the Washington Engineer District carried on a large program of military construction in Washington and vicinity, involving several hundred millions of dollars.

This book is arranged as a series of historical sketches on the projects participated in by the Corps of Engineers in the Washington area. The sketches appear in approximate chronological sequence.

Grateful acknowledgment is made to personnel in the Library of Congress, the National Archives of the United States, the National Museum, the Office of National Capital Parks, Department of the Interior, the Office, Chief of Engineers, Department of the Army, the Beach Erosion Board, and the Army Map Service for their cooperation and assistance in furnishing needed data. Appreciation is also extended to the members of the Washington District organization who have contributed their time, knowledge, and skill to the accomplishment of this undertaking.



The Capitol about 1860

UNITED STATES CAPITOL

A few days after the proclamation of peace between the American Colonies and England in 1783, the subject of a permanent capital for the general government of the States was considered by Congress. Prior to that time and for several years thereafter, Congress met in eight different towns and cities. In 1790, Congress authorized the establishment of a permanent capital on the Potomac River, at a site to be designated by President Washington. One of the first problems confronting the President was the selection of a suitable location in the new city for the Congress House or Capitol. It is said that Thomas Jefferson suggested the term "Capitol." Major Pierre Charles L'Enfant was requested by President Washington to lay out the new Federal City and on the plan prepared by L'Enfant, he chose an eminence known as Jenkins Hill for the location of the Capitol, aptly describing it as "a pedestal waiting for a monument." The plateau on the eastern side of the tract had an elevation of about eighty-eight feet and old Tiber Creek flowed along the base of the knoll. In this study, the location was regarded as the center of the new city from which the streets would radiate in four directions. It so impressed President Washington by its "grandeur, simplicity and convenience," that he approved the plan and laid the cornerstone with Masonic ceremonies on September 18, 1793.

The original construction comprised two wings, built with Virginia sandstone quarried on Acquia Creek. Due to difficulties and delay in getting materials and the lack of funds, nearly twenty years elapsed before the wings were completed and connected by a wooden passageway. In that connecting area, where the rotunda now stands, two wells provided drinking water. The north wing was occupied by the Senate and the south wing by the House. Satirists dubbed the structure as "the palace in the wilderness."

After partial destruction by the British in 1814, of "this harbor of Yankee democracy," the Capitol was restored in 1827, with the addition of the rotunda and a wooden dome covered with copper. From the room used by the Supreme Court, Samuel B. F. Morse sent his first telegraphic message, "What Hath God Wrought."

Need for additional space was met by Congress in 1850, authorizing two extensions and replacement of the wooden dome by a larger one of metal.

On July 4, 1851, the cornerstone of the extensions was laid by President Millard Fillmore. Captain Montgomery C. Meigs, Corps of Engineers, was placed in charge of the construction work. These extensions were completed and occupied by the House in 1857 and by the Senate in 1859. The House chamber is one hundred thirty-nine feet long, ninety-three feet wide and thirty-six feet high, and the Senate chamber is over one hundred thirteen feet long, over eighty feet wide and thirty-six feet high. Construction of the dome was a formidable engineering feat. It weighs between eight and nine million pounds, has a base diameter of over one hundred thirty-five feet, rising to a height of over two hundred eighty-five feet above the eastern plaza. The Statue of Freedom was placed atop the dome on December 2, 1863, and the dome itself completed in 1865. The Capitol covers an area of three and one half acres.

Incidents on the lighter side relieve the serious technical thought on construction projects. The Commissioner of Public Buildings one day wrote a letter to the Captain of the Police Guard at the Capitol, stating that two cows had been observed roving around the grounds and cautioned the guards to each night secure the gates provided by Captain Meigs to prevent a recurrence of such trespass. On another occasion, Captain Meigs was requested not to draw water from the pipes at or near his stables or workshops while Congress was in session, as the House of Representatives could not, when that occurred, get water from the spring which had been purchased for the use of the Congress.

National Archives of the United States
Historic Washington by H. Paul Caemmerer, Ph. D.,
published by the Columbia Historical Society,
Washington, D. C., 1948
Manual on the Origin and Development of Washington
by H. Paul Caemmerer, Ph. D., 1939
Washington City and Capital, American Guide Series,
1937, G.P.O.

WASHINGTON AQUEDUCT

Water systems develop with the growth of a city and looking back over the one hundred and sixty years since Washington was founded, it is apparent that the history of its water system can be divided into three definite periods which correspond to the advance of population. During the first period, from 1790 to shortly before the Civil War, the population was small, houses were far apart, and springs and wells supplied the needs of the Capital City.

The largest four and best-known springs were the old City Spring on the north side of C Street between Four and One-half Street and Sixth Street, Caffrey's Spring on the north side of F Street between Ninth Street and Tenth Street, Franklin Square Spring which supplied the White House, and Smith Spring which supplied the Capitol and Pennsylvania Avenue.

Franklin Square Spring was the best-known and largest spring in the downtown section of the city. It was really a series of springs and the supply was then considered as inexhaustible. Log pipes were used to convey the water to houses down Thirteenth Street and along F Street to Fifteenth Street. In 1819, the United States government bought the springs and the surrounding land, now Franklin Park, and installed a pipe system to the President's house and to the adjacent executive buildings. Congress appropriated nine thousand dollars for this work and, ten years later, gave twelve thousand dollars more to complete it and to improve the grounds around the springs. These springs supplied the White House, the Treasury, and the War and Navy buildings with water for over eighty years.

The largest spring water-pipe system was the supply for the Capitol which was installed in 1832, following an appropriation of forty thousand dollars by Congress for purchase of the spring on the farm of John A. Smith, just south of Soldiers' Home grounds. From this spring, the water was conducted for a distance of about two and one half miles through a six-inch pipe to two brick reservoirs, one on each side of the Capitol building. The increase in population beginning about 1850, prompted Congress to appropriate Federal funds to construct the original works of the

Washington Aqueduct from the Potomac River, which were placed in service in 1863.

The second period in the history of the water system from 1863 to 1950 may be described as one in which there was an ample supply, with extensive periods of very muddy water, which was neither safe nor satisfactory. Sedimentation measures to remove the mud were tried without appreciable success and public resentment was continuous. Springs and wells provided the only clear water for drinking and they were therefore kept in service. Filtration was discussed in this period but was considered too expensive. The conduit was large enough to bring an ample supply as far as the edge of the city, but the distribution mains were not large enough to provide the required quantity or pressure, especially on Capitol Hill. The city water tunnel started in 1883 was a bold attempt to obtain better distribution and an improvement in quality by increased storage and longer sedimentation periods.

At the beginning of the present century, Congress provided for the construction of a slow-sand filtration plant. This was placed in service in 1905 at McMillan Park, introducing clear water into the city mains for the first time, and inaugurated the third period of the Washington water system.

The first superintendent, in reading a paper before the American Society of Civil Engineers, remarked:

"I have been asked to read a short paper on a certain subject this evening. It may be a dry paper, but it is not a dry subject as it deals with the filtration of seventy-five million gallons of Potomac River mud per day and there is every reason to believe that it will yield quite a large percentage of water."

In 1928, a rapid-sand filter plant at Dalecarlia, several large pumping stations, and other improvements were added to the Washington water system.

It is recorded that in 1865, thirteen hundred and eighty-two wells were in service and that the position of municipal pump repairman was one of the busiest jobs



Influent Gatehouse, Georgetown Reservoir

in the city. Nearly all of these hand pumps gave a generous supply and certain wells were highly prized also for the medicinal quality of the water. When the Potomac water was introduced into the city, the wells were gradually eliminated so that there are only a few now remaining in the city.

The use of springs and wells for supplying small amounts of water to Federal and private buildings in Washington was satisfactory for many years, but conditions were quite different as far as fire protection was concerned. Valuable state papers were stored in the United States Capitol and other large buildings, and there was considerable fear of fire. Partial protection for the Capitol building was obtained by the construction of two large, brick cisterns which were kept full of water at all times from the Smith Spring, but this was insufficient for the purpose. It became increasingly evident to Congress that the springs and wells could be of local use only and that eventually the city would have to get its water from a much larger source.

After an unsatisfactory report in 1850, a second report to Congress on water supply prepared at a cost of five thousand dollars was made by Lieutenant Montgomery C. Meigs of the Corps of Engineers who, afterwards, was appointed the first engineer of the Washington Aqueduct and promoted to Captain. In addition to being the engineer in charge of the Washington Aqueduct, Captain Meigs was in charge of construction of the wings and dome of the United States Capitol and other important engineering works.

The final estimate prepared by Captain Meigs for the Washington Aqueduct called for a dam at Great Falls; intake works on the Maryland shore; a brick or stone conduit nine feet in diameter between Great Falls and Georgetown, a distance of approximately twelve miles; a receiving reservoir at Dalecarlia to settle out the mud; a distribution reservoir at Georgetown for further sedimentation; and cast-iron pipe lines leading from the Georgetown Reservoir to various sections of the city of Washington, together with bridges and water tunnels.

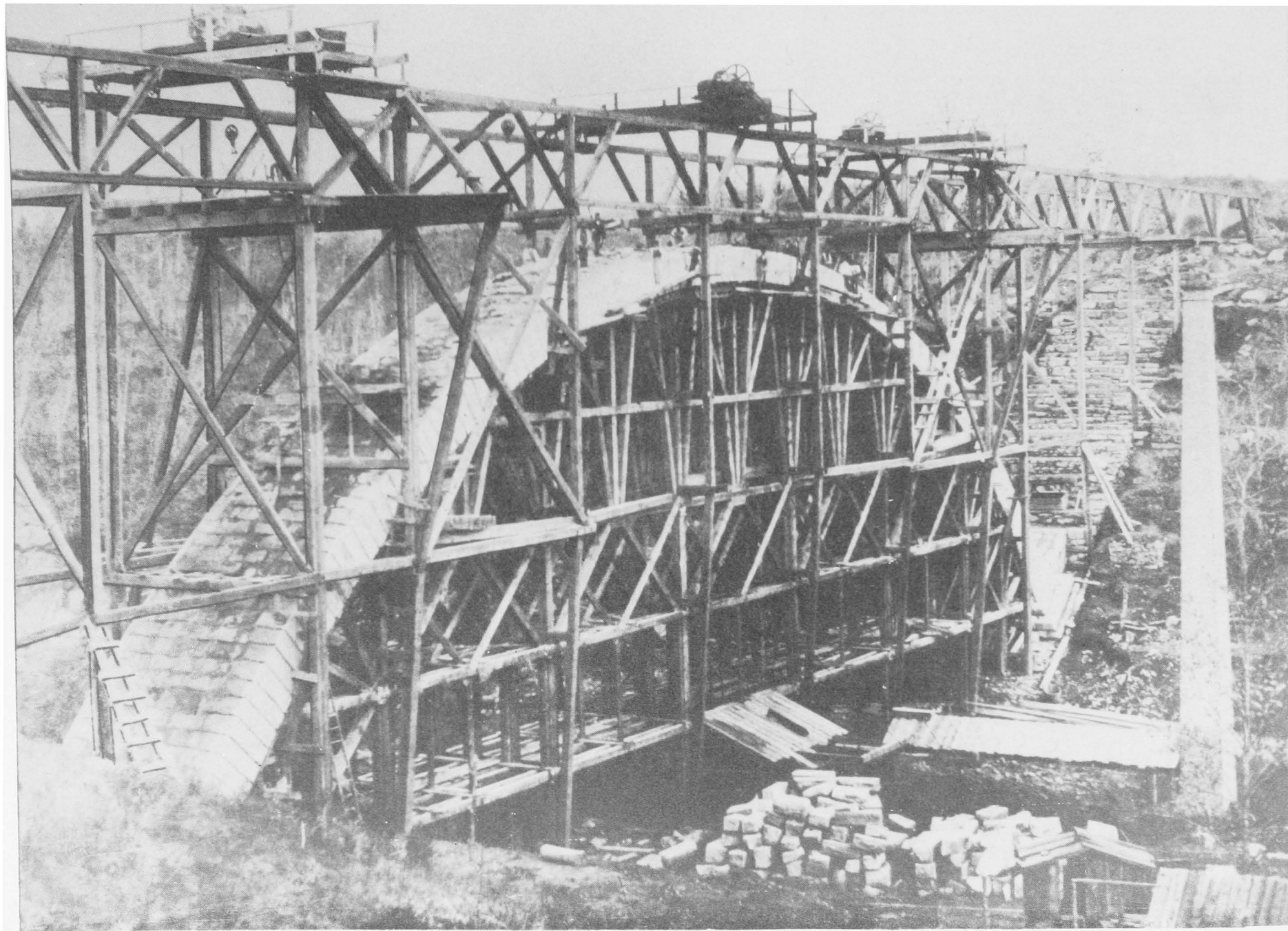
The old conduit from Great Falls to Georgetown Reservoir was the largest single structure involved in

the construction of the Washington Aqueduct and Congress appropriated one hundred thousand dollars in 1853 for commencing the work. In November 1853, ground was broken for the conduit and tunnel work was started in the latter part of the month. Those operations were continued through the winter and the following spring with a force of from three hundred to four hundred men.

Seven months later, construction work was suspended due to lack of funds. In the first year of work, three tunnels had been started, a small section of brick conduit had been built, and all land in Maryland needed for the conduit had been condemned. A first-class sandstone quarry at Seneca, seven miles above Great Falls, had also been purchased and opened up to supply the cut stone needed for the culverts, gate house, and bridges. During construction of the conduit, labor was plentiful and wages were comparatively low. Masons, stone cutters, plasterers, carpenters, and painters all earned from two to three dollars per day and average unskilled labor was paid from one dollar to one dollar and a quarter per day. A typical large payroll for the entire Aqueduct for May 1858, contains the names of five assistant engineers, fifty surveymen and inspectors, seven hundred skilled mechanics, eleven hundred laborers, forty teams, sixty cooks and waiters, thirty overseers, twenty clerks, and twelve slaves. This monthly payroll was thirty-six thousand and six hundred dollars and the total force was about two thousand men. In addition to this force, the various contractors hired about one thousand men. This was for a period of great activity. When funds were low, work was greatly curtailed and the payrolls reduced to about fifty names. Out on the various parts of the work, the men lived in boarding houses furnished by the government and were charged from ten dollars to thirteen dollars per month for bed and meals.

A few slaves were employed on the construction work between 1857 and 1860. They were paid one dollar and twenty cents per day and the money was turned over to the various owners who signed the payrolls. The maximum number of slaves used was approximately fifteen.

Work closed down for the third time in 1859, due to lack of funds, until Congress appropriated five hundred thousand dollars to complete the project. Captain Meigs was transferred from the work by the Secretary of War



Cabin John Bridge Arch

from September 1860 to February 1861 and his place was taken by Captain Benham. Many interruptions occurred in 1861, the first year of the Civil War, and work on the Aqueduct was finally suspended for the fourth time. Most of the laborers connected with the Aqueduct at this time were reassigned to erect military earthworks in nearby Virginia and Maryland.

Water from the Potomac River was first introduced into the conduit in 1863, and it has remained in regular service to this date with only slight interruption. The care and skill which Captain Meigs had used in constructing the old conduit was amply proven by the remarkable watertightness of the structure. After it was placed in full service in July 1864, it was not drained completely again until 1891 or for a period of over twenty-seven years.

Considering each of the various structures of the Washington Aqueduct from a historical and engineering viewpoint, Cabin John Bridge easily occupies one of the most important places although its cost was less than other features of the work. Designed and built by Captain Meigs for the purpose of conveying the conduit over Cabin John Valley, this imposing granite arch immediately won its reputation as the longest masonry arch in the world and held this record for about forty years. It is a familiar landmark known to practically all of the citizens of Washington and in the early days it was visited by thousands of people including many engineers from foreign countries.

Economical transportation of the heavy timbers and stone for the bridge was an important question. All of the granite and sandstone was brought to the site on the Chesapeake and Ohio Canal which was only about a thousand feet away from the bridge. Transportation from the canal to the bridge was obtained by constructing a dam across Cabin John Creek near the canal together with a lock to permit boats to pass from the canal up to the pool under the bridge. At the site of the bridge, timbers and stone were hoisted into place by derricks and a traveling crane working along the bridge center line. A quarry for all of the abutment stone was opened a few hundred feet up the valley. At the present time the valley is overgrown with trees but indications of the old construction canal lock, piers, and quarry can be readily found.

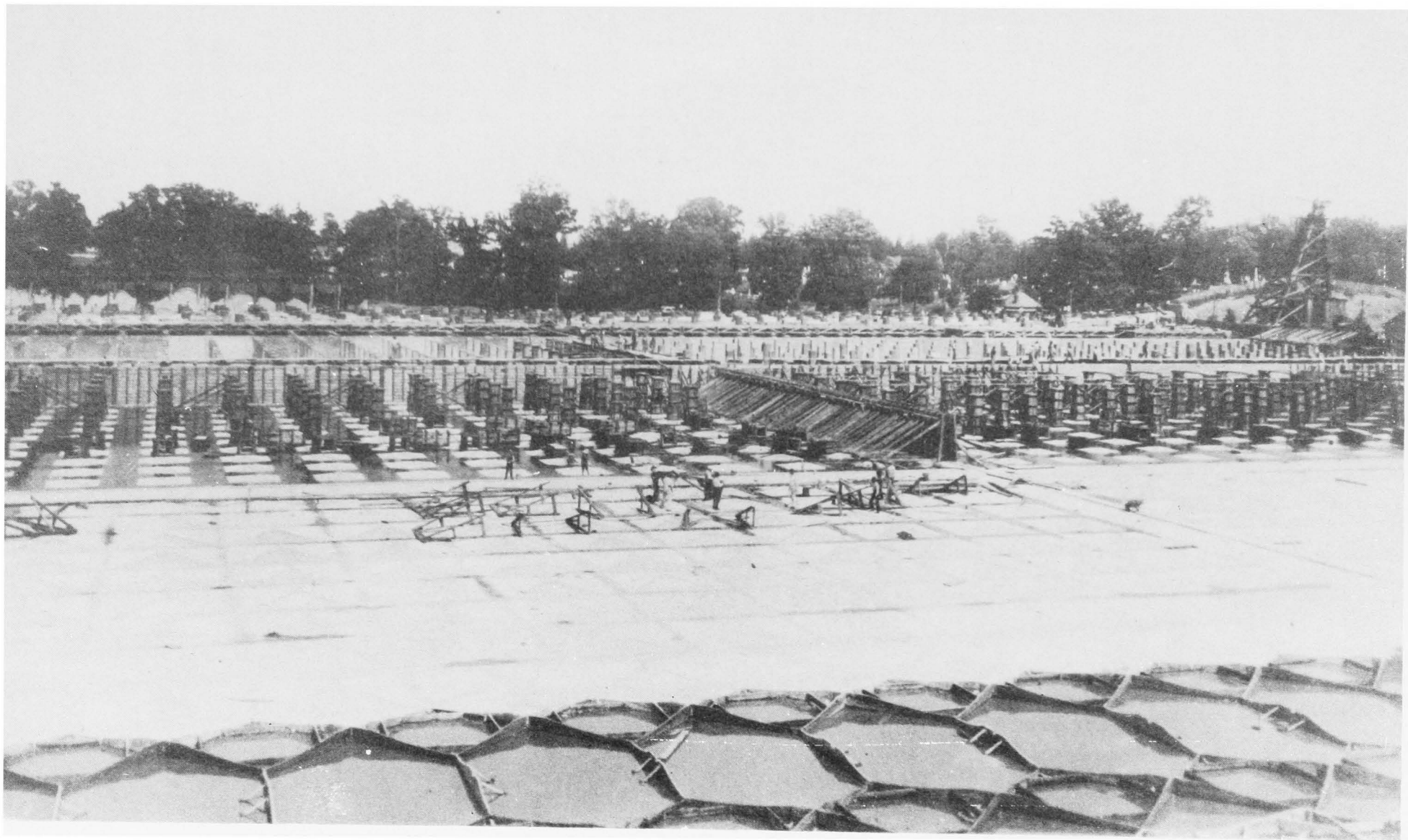
In Captain Meigs' report at the end of the fiscal year 1861, when the bridge arch was completed, the following statement is made:

"The centering of the bridge has been removed and the weight of the arch rests on its own bearings. During the striking of the centers the closest instrumental observations failed to discover the slightest settlement in this the largest stone arch in the world, 220 feet in span."

In this report, Captain Meigs also gave the name "Union Arch" to Cabin John Bridge, but this name was never adopted for general use.

Cabin John Bridge is higher and more imposing than Rock Creek Bridge and it has naturally received most of the praise. The essential features of Rock Creek Bridge were two forty-eight-inch cast-iron pipes built in arch form with a two hundred-foot span and resting on masonry abutments. These pipe arches were used to convey the entire city water supply and also to support a street for many years. At the present time these two massive cast-iron arches are entirely hidden by the new and much wider reinforced concrete arch bridge built over the original structure. The pipes themselves are visible however in recesses on the under side of the new bridge and they are still used to convey a portion of the water supply of the city.

One of the most important features of Captain Meigs' plans which he hoped would provide ample sedimentation to clarify the muddy Potomac River water was the construction of a large receiving reservoir followed by a distributing reservoir in the line of the conduit between Great Falls and the city. The receiving reservoir, now Dalecarlia Reservoir, consisted simply of an earth dike across the valley of Little Falls brook at the District boundary line. This reservoir had a total capacity of about one hundred and fifty million gallons and it was very effective in removing the heavier turbidity. The distributing reservoir, now Georgetown Reservoir, located two miles closer to the city, was a much more difficult engineering problem. No valley was available at this location and it was necessary to excavate the site and construct a long rectangular earth dike to provide storage space. The water remained in these reservoirs



McMillan Filtration Plant

several days before it was sent to the city but this did not eliminate the fine unsettled material carried in suspension which was destined to give the city water supply a muddy, yellowish color for over forty years until filtration was finally adopted.

It is not intended to infer that the water supplied to Washington was as bad as that described by Mark Twain in his life on the Mississippi where:

"If you let your glass stand for half an hour, you can separate the land from the water as easy as Genesis; and then you will find them both good: the one good to eat, and the other good to drink. But the natives do not take them separately, but together, as nature mixed them. When they find an inch of mud in the bottom of a glass, they stir it up, and then take the draft as they would gruel. It is difficult for a stranger to get used to this batter, but once used to it he will prefer it to water."

By Act of Congress in June 1862, jurisdiction over the Washington Aqueduct was transferred to the Interior Department for the period of the Civil War. During the next five years that the Washington Aqueduct was in the charge of the Interior Department, the work was under the supervision of Mr. Silas Seymour for the first three years and Mr. Theodore B. Samo for the remainder of the period. Major N. Michler, Corps of Engineers, was placed in charge when the work was transferred back to the War Department and Mr. Samo was kept as Assistant Engineer in direct charge of the work.

The first half of the solid masonry dam across the Potomac River at Great Falls was begun in 1864 and completed in 1867. This structure, with a length of nine hundred and ninety-five feet and a crest elevation of one hundred and forty-seven feet, was built to provide a head of six feet in the conduit.

The city water tunnel, one of the largest improvements to the Washington Aqueduct, was begun in 1883, and completed in 1902. In its present capacity, it is considered not only a vital link in the water supply system but also as a very substantial and safe structure.

The Senate Act of 1882, appropriating money for the tunnel, also authorized construction of a reservoir near Howard University with a capacity not less than three hundred million gallons. It is now called McMillan Reservoir. Smith Spring, heretofore mentioned, was located almost in the center of the reservoir and a brick tower with an ornamental top was built over the spring as a marker which is still visible. Work on the reservoir was performed under contract mostly with horses and scrapers over a five-year period from 1883 to 1888. After work on the tunnel was stopped, there was no way in which the reservoir could be filled with water so it was left empty and overgrown with weeds and bushes for over fifteen years. It was placed in full service in 1903, when the tunnel was completed and forms a valuable feature of the present water system. An electrically-operated pumping plant lifts the water to the twenty-nine acres of filter beds, whence it flows to clear-water basins and into the city mains for distribution.

In 1919, it was evident that the population jump was causing an alarming increase in water consumption and would require an increase in water supply facilities. Major M. C. Tyler, in charge of the Washington District, made the necessary studies for this work. His report recommended construction of a new conduit from Great Falls to Dalecarlia, an eighty million gallon per day filter plant at Dalecarlia, and various transmission mains and storage reservoirs. Upon approval by Congress, construction was begun in 1922 and completed in 1928.

The general purpose of the new project was to double the supply of raw and filtered water for the city in such a way as to provide safety and security for the entire water system. The new conduit was built parallel to the old conduit and provided with interconnections at three different points so that individual sections of either conduit could be drained for repairs at any time and still supply the city on an emergency basis. The Dalecarlia filter plant, the pump station, and the new transmission mains were connected independently to the high-service areas of the system so that either filter plant could function without curtailing the output of the other plant.

The water supply system of the District of Columbia furnishes all water used by Arlington County and Falls



Dalecarlia Filtration Plant

Church, Virginia, and some of the water used by adjacent Maryland communities. Most of the governmental activities in the contiguous area are also served. In the decade ending 1940, the large increase in population in these areas created a need for an additional supply.

Under a plan presented to Congress in a joint report of the Washington Engineer District and the Commissioners of the District of Columbia, the capacities of the supply and distribution system are to be increased by additional raw-water, purification and sterilization facilities, pumping stations, reservoirs, transmission and trunk mains at an estimated cost of fifty million dollars. In accordance with the plan, improvements to increase the capacity of the McMillan filter plant have been completed. At the Dalecarlia filter plant a two-story flocculation-sedimentation basin and six additional filters have been constructed; improvements have been made to existing structures and a large clear-water basin is under construction. Designs are in progress for other major items, including a four hundred and fifty million gallon per day purified-water pumping station and a five hundred million gallon per day raw-water pumping station.

Present plans contemplate the completion of facilities adequate for the ensuing fifty years.

House Doc. 480, 79th Cong., 2d Sess.
Scrap Book of Captain Montgomery C. Meigs
Office Files

OLD NATIONAL MUSEUM

In the early part of the nineteenth century, James Smithson, a man of science and a son of the Duke of Northumberland, died in England. He bequeathed a legacy to the United States for the purpose of founding at Washington an establishment under the name of the "Smithsonian Institution", for the increase and diffusion of knowledge among men. The legacy became available in 1838 and was brought to this country in gold sovereigns, yielding over one half a million dollars in United States currency.

An "establishment" by the name of the "Smithsonian Institution" was constituted by the Act of August 10, 1846, designating the President and Vice President and other high ranking officials of the government as members.

Under this authority of Congress, the Board of Regents selected a site of about nineteen acres of government-owned land on the Mall, lying west of Seventh Street. This portion of the city was known as "The Island" because it was cut off from the inhabited portion by a canal which was crossed at four points by wooden bridges.

The cornerstone of the building was laid with Masonic rites on May 1, 1847, and was constructed of Seneca Creek freestone obtained from the Bull Run quarry about twenty-three miles from Washington. By 1852, the work was completed, except for the interior, when it was decided to substitute fireproof materials for the wood and plaster originally planned for the main building. Captain B. S. Alexander, Corps of Engineers, was employed to prepare detailed drawings and plans for this portion of the work and to superintend the construction. By 1855, all work was completed. The change in plans, whereby iron, stone, and brick were substituted for the wood and plaster in the main building, saved that portion of the edifice from a destructive fire on January 24, 1865. A temporary roof was placed over the damaged portion by the Quartermaster's Department of the Army.

For many years following the foundation of the Smithsonian Institution, the National Museum was housed

in a portion of the building. As defined by Acts of Congress, the scope of the United States National Museum included, besides natural history, geology, archaeology and ethnology, the various arts and industries of man. Growth of the Museum was taxing all available space for storage of its material. Large collections had been donated to the United States by foreign governments and other exhibitors at the Philadelphia Centennial Exhibition in 1876, which were shipped to Washington upon close of the Exhibition. The need for storage space, already acute, hastened action toward securing a separate building for the Museum exhibits.

In 1877, Colonel Thomas Lincoln Casey, Corps of Engineers, was designated a member of the commission appointed by the President to report upon the security of several public buildings against conflagration. The Smithsonian Institution was the subject of one of the recommendations.

Action to provide separate quarters for the Museum was delayed by Congress until March 3, 1879, when two hundred fifty thousand dollars was appropriated for a building to house the National Museum in accordance with plans which had been prepared by General Montgomery C. Meigs. A committee, of which General William T. Sherman was Chairman, representing the Board of Regents, invited General Meigs, Quartermaster General of the Army, to act in the capacity of consulting engineer on the project. Work was started in April of 1879, and was sufficiently completed for the inaugural reception to President Garfield on March 4, 1881.

This building became inadequate for the needs of the National Museum, and Congress authorized the existing monumental structure on Constitution Avenue in 1903.

The United States National Museum
by Richard Rathbun, Assistant Secretary
of the Smithsonian, 1905, G.P.O.

OLD POST OFFICE

History of the Postal service has its roots in the early settlement of the colonies. In 1692, the English colonies made attempts to organize a system for handling mail. A General Post Office for all Her Majesty's¹ dominions was established by the British Parliament in 1710 and the Postmaster-General was permitted to have "one chief letter-office in New York, and other chief letter-offices at some convenient place or places in each of Her Majesty's provinces or colonies in America." Congress enacted a law in 1789, providing for the appointment of a Postmaster-General.

The first home of the General Post Office in Washington, D. C. was established on the square bounded by E and F, Seventh and Eighth Streets. On the south half of the square, an old building known as Blodgett's Union Public Hotel was purchased by the government in 1810. After the British burned the Capitol, Congress held one session in it, September 19, 1814. For a time it was occupied by the General and City Post Offices, Patent Office, and Library of Congress. The building and contents were destroyed by fire in 1836. Thereupon, a new fireproof building was constructed in 1839, on the southern half of the square facing E Street. In 1842, Congress authorized the purchase of the north half to F Street, upon which the extension was built under the superintendence of Captain Montgomery C. Meigs, Corps of Engineers. Construction was started in 1855.

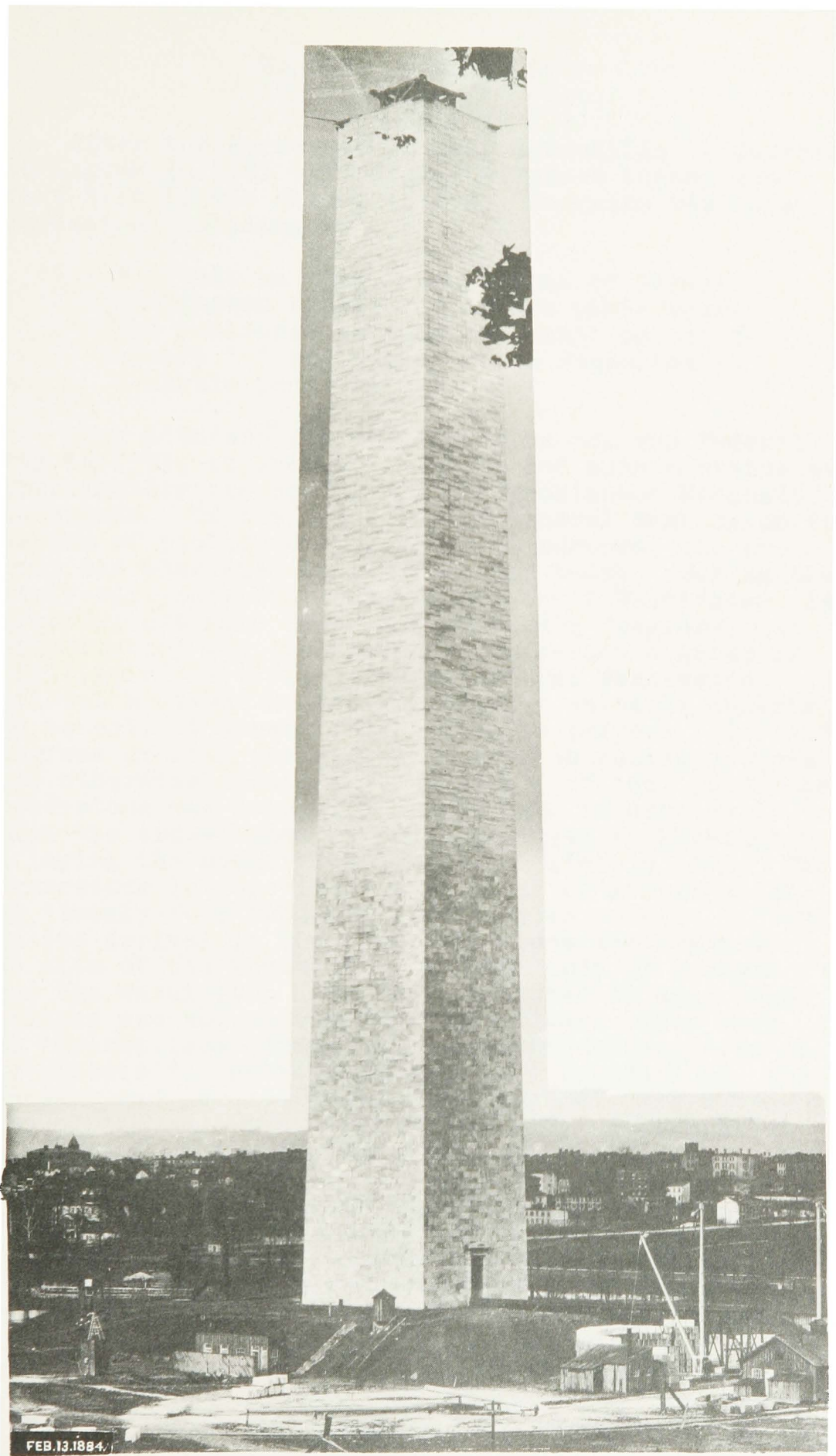
When completed, about 1866, the building measured three hundred by two hundred feet and was four stories high with vaults below the basement. It is of modified Corinthian architecture and cost nearly two million dollars. An inner court was provided ninety-five feet by one hundred ninety-four feet. New York marble was used for the southern portion of the building and Maryland marble for the extension. Massive walls, both interior and exterior, characterize the construction. Interior walls are twenty or more inches thick of solid stone or brick and plaster. Outside walls are thicker. The original outside wall, four feet thick, of the older half of the building, forms the partition with the extension.

¹ Queen Anne of England

Entrance to the courtyard was provided by a carriageway from the Eighth Street side. This provided access for mail wagons to load and unload. The key-stone of the arch over this entrance represents "Fidelity." Figures on either side in bas-relief symbolize "Steam" and "Electricity."

On the site occupied by the extension, the first office for the receipt and dispatch of messages by magnetic telegraph was established by Samuel B. F. Morse in the upper story of an old brick building. A bronze tablet marks the site.

Rider's Washington by Frederic Taber Cooper,
published by the McMillan Company, 1924
Washington and Its Environs by DeB. Randolph Keim,
1874
Philp's Washington Described, 1861



Washington Monument

WASHINGTON MONUMENT

After the surrender of Lord Cornwallis to General Washington in 1781 but before the peace treaty with Great Britain was signed in 1783, Congress passed a resolution providing -

"that an equestrian statue of General Washington be erected at the place where the residence of Congress shall be established * * the statue to be supported by a marble pedestal * * ."

When L'Enfant prepared his plan for the Federal City in 1791, he included a place for such a statue at approximately the spot where the Washington Monument now stands. On the objection of General Washington to the use of public funds for such a purpose, the proposal was abandoned until after his death. During the thirty-odd years following the death of Washington, ineffectual attempts were made to secure Congressional authorization for the project. Thereupon a group of public-spirited citizens organized The Washington National Monument Society to erect a suitable memorial and to collect subscriptions for the purpose. In 1848, Congress granted the Society a site on public grounds "not otherwise occupied." On July 4 of that year, the cornerstone was laid with appropriate ceremonies in which the trowel used was that employed by Washington in laying the cornerstone of the Capitol in 1793. The cornerstone is described as "a block of marble weighing 'twenty-four thousand five hundred pounds' * * ."

"On its arrival in the city, the stone was drawn to the site of the Monument by a large body of workmen from the Washington Navy Yard, assisted by many other citizens who volunteered their services. This work was 'accomplished amidst much enthusiasm displayed in the streets'". Because of poor soil foundations, the Monument was located about three hundred feet south-east of the east-west axis of the city. contemplated by L'Enfant in his plan of 1791.

In 1859, the Society applied to the Secretary of War for the detail of an officer of the Corps of Topographical Engineers to assume the duty of engineer of the Monument and to superintend its construction. Lieutenant J. C. Ives of the Corps of Topographical

Engineers was assigned to the duty. Over a year later Lieutenant Ives was relieved by orders of the War Department for duty on another assignment.

Upon request from the Society to the Chief of Engineers, Lieutenant W. L. Marshall, Corps of Engineers, made a study and report on the sufficiency of the foundations for the Monument in 1874.

By Congressional action in 1876, money was appropriated to resume work on the Monument under the ownership of the United States. The Society conveyed its property to the government in 1877. A board of officers of the Corps of Engineers composed of Lieut. Col. John D. Kurtz, Lieut. Col. Quincy A. Gilmore, and Lieut. Col. James C. Duane. made a re-examination of the foundations for the Monument. Strengthening of the foundations was authorized by Congress in 1878, under the supervision of Lieut. Col. Thomas Lincoln Casey, Corps of Engineers, assisted by Captain George W. Davis, U.S. Army.

Work on the construction of the obelisk was resumed in 1880, and four years later the capstone was set in place.

Enlarging and strengthening the foundations to sustain the estimated weight of eighty-one thousand tons to be imposed by the completed shaft was a notable engineering task. Moreover, while this work was in progress, Colonel Casey corrected a deflection of one and four-tenths inches in the unfinished shaft.

The foundations were enlarged from the original area of sixty-four hundred square feet to over sixteen thousand square feet, and the depth increased from about twenty-three feet to nearly thirty-seven feet. This work involved the removal of fifty-one per cent of the old foundations and the undermining of forty-eight per cent of the shaft area.

Dedication of the Monument was held on February 21, 1885, with Masonic ceremonies. At these ceremonies, Colonel Casey delivered an address and in his closing remarks said:

"Mr. President: For and in behalf of the Joint Commission for the completion of the Washington Monument, I deliver to you this column."

Colonel Casey continued on his assignment until 1888, when he was appointed Chief of Engineers.

Colonel John M. Wilson, Corps of Engineers, who was a native of Washington, D. C., was assigned as engineer in charge on April 4, 1888, and under his direction grading of the grounds, erection of the marble office building for the custodian of the Monument, and placing of the memorial stones in the interior of the shaft were completed. These memorial stones, bearing appropriate inscriptions, are one of the unique features of the stately shaft. They were contributed by individuals, fraternal orders, societies, States, and foreign countries.

A distressing incident occurred in the gift of a block of marble from Rome, presented by the Pontiff, as a tribute to the memory of Washington. It was of beautiful texture and had stood in the Temple of Concord at Rome. While stored in a shed at the site of the work, unknown parties appeared early one morning and after confining the watchman, took the stone away. No trace of it was ever found. The immediate effect of the destruction of the "Pope's stone" was to anger a large body of the citizens of the country, members of the Catholic Church, and for a long time afterwards, to estrange any interest they had had in the building of the Monument, including the collection of funds for its erection. This episode became one of the contributing factors in a subsequent request that the government take over the task of completion. Total cost of the completed work was slightly over one million dollars, of which nearly one-third was free-will offerings from the people.

Senate Doc. 224, 57th Cong., 2d Sess.
House Doc. 48, 42d Cong., 2d Sess.
National Archives of the United States

FORT WASHINGTON, MARYLAND

Downstream of Washington a few miles, old Fort Washington stands on a bluff overlooking the river between Swan Creek and Piscataway Creek on the Maryland shore. Although never considered a beautiful work of architecture, nor particularly significant from a military standpoint, its history forms a link with the past, and it is a notable landmark.

The colonists from England in their first voyage up the "River Pawtommack" found an Indian settlement at the mouth of Piscataway Creek. In 1645, an Act was passed by the Colonial government for the establishment of a garrison at that point. On May 12, 1794, General Washington wrote to General Knox as follows (referring to the site now occupied by Fort Washington):

"The President of the United States, who is well acquainted with the River Potomac, conceived that a certain bluff of land on the Maryland side, near Mr. Digges', a point formed by an eastern branch of the Potomac, would be a proper situation for the fortifications about to be erected."

Fort Washington was originally known as Fort Warburton. It derived its name from the tract of land which had been patented in 1641 as the Manor of Warburton to an ancestor of Thomas A. Digges, a close neighbor of George Washington on the opposite shore.

During the ensuing eighteen years, small sums of money were expended for intrenchments. Because of the imminence of war with Great Britain, President Madison directed Major L'Enfant to proceed to Fort Warburton and report on the condition of the defenses. His report concluded with the observation "that the whole original design was bad, and it is, therefore, impossible to make a perfect work of it by any alteration."

In 1814, the garrison of the Fort blew up the magazine and abandoned the works, without firing a shot, permitting the British squadron to proceed to Alexandria and capture that city.

During the following decade, the Fort was rebuilt substantially as it is today. The influence of medieval methods of warfare is apparent in the old sally port, dry moat, and drawbridge.

Occupying an area of about three hundred and fifty acres, the old Fort faces the Potomac River in a semi-elliptical form. Thick masonry walls inclosed the fortification, which permitted access by a drawbridge over a dry moat at the sally port. Two demibastions overlooked the river and gave command both above and below the works. The Fort had three levels - water battery, casemate positions and ramparts, from which guns controlled the river. A parade extending to the rear of the Fort contained officers' quarters and soldiers' barracks. Magazines were located nearby. Office of the commanding officer and a guard room were located in the sally port.

Between 1840 and 1848, restoration work was undertaken to again place the Fort in a serviceable condition. A new drawbridge was built to replace the old one which had fallen into decay and permanent gun platforms for barbette carriages were constructed. Walls on the land side were strengthened. A bastioned redan was placed in the south wall, to provide for six guns against attack from the Piscataway Creek side.

Progressive deterioration of the fortification occurred during the ensuing years. As the enmity between the North and South grew, some marines were dispatched to the Fort in January 1861. Following this, detachments of troops from the Artillery, Infantry, and Coast Guard were assigned to the defenses. With the tightening of the blockade against the South, the importance of Fort Washington waned.

Old Fort Washington was abandoned about 1872, and the muzzle loading guns were removed.

During the Spanish War era, Fort Washington again assumed importance in the defense of the Capital City. The Washington Engineer District made extensive additions and improvements, under the direction of Colonel Chas. J. Allen, District Engineer. Modern ten-inch breech loading rifles on disappearing carriages were installed in batteries "Decatur", "Emory", "Humphreys", and "Meigs". Six-inch breech loading rifles on disappearing carriages were installed in battery "Wilkin"; four-inch guns in

battery "White"; and three-inch guns in battery "Smith". Battle commander stations, mining casemates, torpedo storehouses, cable tanks, shell rooms, gun loading platforms, search light plants, telautographs, electric plants, chain hoists, water supply, latrines, meteorological and tide observing stations, and other accessories were provided. As construction work was completed, it was transferred to the commanding officer of the post. In 1918, a portion of the armament was dismantled for service abroad in World War I.

By 1923, all work of the Washington District at the Fort was discontinued and in 1939, the entire installation was turned over to the Department of the Interior. It reverted temporarily to the War Department after the attack on Pearl Harbor and in 1944, the Veterans' Administration used the reservation. The site was returned to the Department of the Interior in 1946, to become a part of the park system and is now open to visitors.

History of Maryland by Bozman
History of Maryland by McSherry
Invasion of Washington by Williams
History of the United States by Ridpath
Historical Sketch of the Second War between the
United States and Great Britain by Ingersoll
Records of the Columbia Historical Society
Office Files

FORT FOOTE, MARYLAND

Upon the outbreak of the Civil War, the approach to Washington by water was guarded by Fort Washington, Maryland. In 1862, Fort Foote, Maryland, was established as an adjunct to Fort Washington, four miles south. Located on Rozier's Bluff about eight miles below Washington, the post occupied approximately sixty-six acres of land. The property was purchased by the United States on December 26, 1872, when about fifty-one acres were acquired and about fifteen additional acres were bought January 25, 1873. This work formed the inner line of defense of the channel of approach by water to Alexandria, Washington, and Georgetown.

The defenses consisted of earthworks and wooden structures constructed by the Corps of Engineers and were essentially completed in the fall of 1863. Although five gun platforms had been laid, four front, and one center pintle, built of concrete and granite, no guns had been mounted. The buildings which had been constructed were of perishable material and were rapidly going to decay, but as the Fort was not occupied by troops, no repairs were undertaken until some years later.

Situated on the bluff about one hundred feet above the river, the front was over five hundred feet in length, with a return of seventy-five feet at an angle of one hundred twenty degrees. These two faces constituted the water battery, subsequently armed with heavy guns. The rear of the Fort, parallel to the waterfront, was bastioned and armed with field and seige guns for land defense. Armament consisted of two fifteen-inch smooth bore Rodman guns and four eight-inch Parrott rifles, mounted on barbette carriages; seven four and two-tenth-inch Parrott rifles; six four and sixty-two hundredth-inch smooth bore guns; five ten-inch mortars on cast-iron beds and five twenty-four pounders on wood beds. Cedar posts and chestnut roof logs, with occasional oak capping, provided durable structures.

In 1872, the Board of Engineers for Fortifications approved a project for modernizing the old Fort but very little was accomplished due to lack of funds.

Work was suspended in 1874, and the garrison withdrawn in 1878, leaving the post in charge of an Ordnance Sergeant.

A communication from the Post Quartermaster to the Quartermaster General of the Army, General Montgomery C. Meigs in 1872, indicates that even in that isolated spot, fiscal year requirements could not be ignored. He wrote, "In view of the near approach of the time when the Transportation at this Post will be most severely strained in hauling coal, etc., called for on Requisitions for the current Fiscal Year, I request authority to have the Harness and Wagons placed in such repair as will make them entirely serviceable."

With the establishment of the Washington District in 1882, Colonel Peter C. Hains, District Engineer, assumed charge of the work at this site. At that time he stated, "The condition of the work may be described as one of utter dilapidation."

During the ensuing half century, little use was made of this post. The Washington District made minor repairs to the roadway leading to the wharf and to the shore protecting the roadway. From time to time permission was granted for religious organizations to use the premises for outings. For a period around the turn of the century, Fort Foote was used as a subpost of Washington Barracks, for training of officers and enlisted men and the storage of materials. In 1915, the Department of Commerce was granted permission to maintain a light on the old wharf as an aid to navigation.

The post fell into decay, and as it had no significant historical interest, Congress authorized its sale by Act of March 4, 1923.

By Congressional Act of May 29, 1930, authority was granted to turn Forts Washington, Foote, and Hunt over to the Director of Public Buildings and Public Parks of the National Capital for administration and maintenance as a part of the George Washington Memorial Parkway when they were no longer deemed necessary for military purposes.

Under this authorization Fort Foote was transferred by the Washington District to Public Buildings and Public Parks of the National Capital.

National Archives of the Unites States
Defenses of Washington
by Bvt. Major General J. G. Barnard,
Colonel of Engineers, U.S.A., 1871
Annual Reports
Chief of Engineers

FORT HUNT, VIRGINIA

Fort Hunt, Virginia, is opposite Fort Washington, Maryland, twelve miles below Washington, D. C. It occupies a tract of about two hundred acres on Sheridan Point. This area was once a part of the George Washington farms and lies just west of the Mt. Vernon Memorial Highway. The property was acquired by the United States during the decade beginning 1893 for use as a military reservation in accordance with recommendations of the Board of Engineers, dated March 28, 1890. Negotiations for the purchase of the first tract of land were begun by Colonel Peter C. Hains, District Engineer, in 1890. Condemnation proceedings were necessary to acquire the tract known as the Pelton Farm and the armament for the Fort was placed thereon. Subsequently, the Linton and Grau farms were acquired to provide space for garrison housing and drill grounds. This additional land also allowed greater firing range without passing over private property.

When the Clerk of the Court in Fairfax County, Virginia, received the acquisition papers for record, he presented a bill for two dollars. The District Engineer, Colonel Chas. J. Allen, reported to the Chief of Engineers that he had no money for the purpose and received a special allotment of two dollars from defense funds to pay the fee!

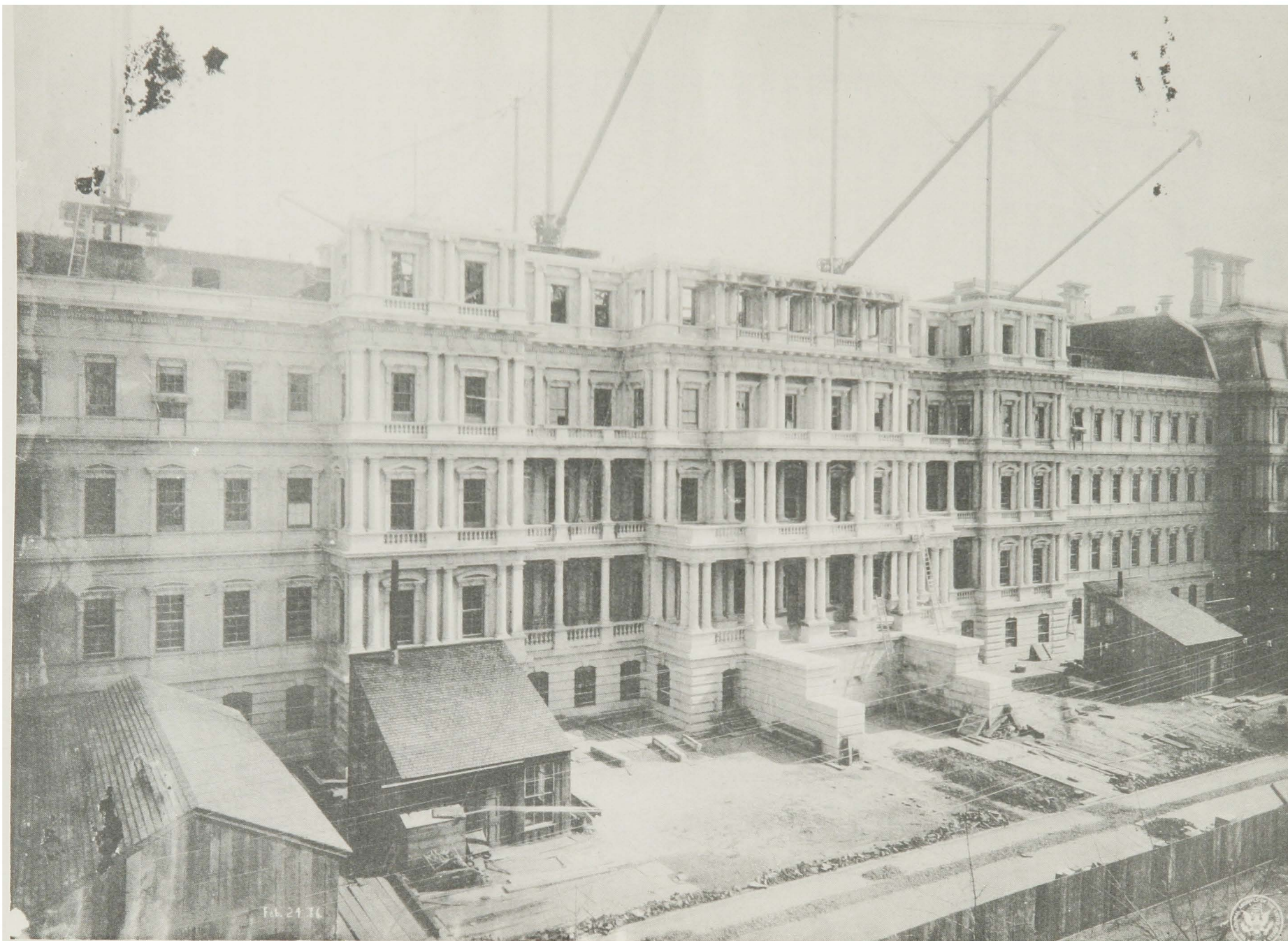
The Washington Engineer District performed the work required for the mounting of three eight-inch breech loading rifles on disappearing carriages in battery "Mt. Vernon"; one five-inch rapid-fire gun on balanced pillar mount in battery "Porter"; one five-inch rapid-fire gun on balanced pillar mount in battery "Robinson"; and three three-inch rapid fire guns on balanced pillar mounts in battery "Sater". Secondary station, mine base line, meteorological station, fire control tide gauge, electric light plant, thirty and sixty-inch searchlight plants, power house, and auxiliaries were provided by the Washington District.

Military activity at Fort Hunt was limited to its occupation in March 1898 by a company of Artillery soldiers and by several companies of United States Volunteer Infantry troops from Pennsylvania for a few

months during the same year. During World War I, the armament from batteries "Mt. Vernon", "Porter", and "Robinson" was dismantled for shipment overseas. By 1922, all armament had been removed from the batteries and disposition of the installation by sale or transfer to the Department of the Interior for park purposes was under consideration.

On October 21, 1932, the reservation was transferred to the Office of Public Buildings and Public Parks. Just prior to World War II, a portion of it was utilized as a CCC camp. By permit under date of May 15, 1942, one hundred fifty-seven acres were taken back by the War Department for the duration. A detention camp was maintained there during the war. Subsequent to its retransfer to the Park Service, the reservation has been chiefly used for recreational purposes and is now a part of the park system.

Office Files



State War and Navy

STATE, WAR AND NAVY BUILDING

From the Civil War period to the close of the century, some public buildings were erected in Washington, D. C., which have been termed "incongruous absurdities." Among them, the State, War and Navy Building has been labeled as "Washington's worst eyesore - the ugliest heritage of the nineteenth century in America." It is French Renaissance in type of architecture and was originally designed by Thomas U. Walter, Architect of the dome of the Capitol. However, A. B. Mullett, Supervising Architect of the Treasury, made so many changes that only the interior finally conformed to the original plans.

The site on which the building stands was occupied by two brick structures, erected shortly after the War of 1812, for the use of the War and Navy Departments. These buildings were demolished to provide room for the new State, War and Navy Building, first authorized by Congress in the Act of March 3, 1871. Work was begun on June 21, 1871, under direction of the Secretary of State with A. B. Mullett in immediate charge of construction until the end of December 1874, when William A. Potter, Supervising Architect of the Treasury, succeeded him and remained in charge to the third of March 1875. On this date, the work was placed by direction of Congress under the Secretary of War, who assigned Major O. E. Babcock, Corps of Engineers, to supervise the construction. On March 3, 1877, Colonel Thomas Lincoln Casey took charge and supervised the job to completion, ready for occupancy on January 31, 1888. Under eighteen appropriations made between 1871 and 1886, the total cost was over ten million dollars. Of the total appropriated, over eighty-six thousand dollars remained unexpended upon completion of the project. Much of the work was performed under contract but some portions of it were done by hired labor to secure a grade of workmanship which could not be expected under contract procedures.

The building was erected in five parts to form the completed structure. First the south wing was completed and occupied by the State Department in 1875. The east wing was only partially completed when the work was placed under the supervision of the Corps of Engineers in 1875. It was occupied jointly by the War and Navy Departments in April 1879. On the north, the wing was completed in

December 1882, and taken over by the War Department in February 1883. Two remaining sections of the building on the west and center were built under one operation, completing the entire project for occupancy.

Overall dimensions of the building are approximately five hundred twenty-three feet by two hundred eighty-five feet, rising to a height of about one hundred thirty-four feet above the pavement. A total area of approximately ten acres is provided. Massive foundations, exterior walls of granite and interior of marble, granite stairways with balusters of bronze, wrought-iron studs and laths in light interior partitions, door and window frames, trimmings and baseboards of cast iron, roof covered with copper on arched corrugated iron leveled up with cement, provide the fireproof structure specified by Congress in its initial authorization.

House Ex. Doc. 337, 50th Cong., 1st Sess.

FORT LESLEY J. McNAIR

The confluence of the Potomac and Anacostia Rivers, forms a peninsular approximately ninety acres in extent with a historical background worthy of note. Legend says this peninsular was the site of an Indian Council camp, and later was called Greenleaf Point. As early as 1794, it was occupied by a one-gun battery under the command of Captain Villard, a French officer, com-patriot of Lafayette. In 1797, it became an official military reservation and six years later Congress provided funds for an arsenal.

Tragedy stalked the area in the ensuing years. In 1814, the arsenal was destroyed by the British, who lost several officers and thirty men by the explosion of powder in a dry well. A fire in an arsenal room killed twenty-one girls in 1864. A public funeral for the victims was held on the reservation, and President Lincoln led the procession to the Congressional Cemetery. Again about a year later, a box of primers dropped from a powder truck, with the loss of nine lives.

About 1826, a portion of the reservation was walled off and a building erected for use as a penitentiary. The conspirators in the assassination of President Lincoln were confined here in 1865; four of them were hung nearby and the others sent to distant prisons. Until 1869, the penitentiary was used as a storehouse for ordnance material. In 1881, use of the grounds as an arsenal was discontinued and the name of the installation changed to Washington Barracks. Buildings remaining at the site fell into decay and the area was frequented by people in the hot summer months for a view of the river and for fishing from the rocks along the westerly side.

During the Spanish-American War, the post hospital of Washington Barracks was established by General Orders as the Army General Hospital, and served as such for about ten years, when it was moved to its present site and its name changed to Walter Reed Army Hospital.

A new epoch was inaugurated in 1901 when the Engineer School and Depot were transferred from Willets Point, New York, to Washington Barracks. Fort Foote on

the Maryland side of the river, about eight miles south of Washington, became a subpost of Washington Barracks. During the next year, Congress authorized a construction program for the post in accordance with plans prepared by a board of Engineer officers. Under this program, the cornerstone of the Army War College building was laid in 1903 with Masonic rites. The trowel used by President Washington in laying the cornerstone of the Capitol in 1793 was used on this occasion. Officers and chaplains' quarters, mess halls, roads, sidewalks, sewage, water supply and other utilities were constructed. A target range was provided. Although provision was made for the ultimate erection of twelve statues of "great commanders," only one has been placed. A bronze statue of Frederick the Great, presented to this country by Emperor William II of Germany, was unveiled in 1904. Because of public sentiment, it was removed during World War I, but replaced in 1927. Engineer officers were assigned to local charge of the work by the Chief of Engineers.

Difficulties in the execution of construction work were encountered due to the lack of solid foundations. A strip of land constituting the backbone of the grounds was bordered by low areas on the Potomac River side and the old James Creek Canal for about thirty-five hundred feet on the easterly boundary. Construction of seawalls and filling behind them with dredged material by the Washington Engineer District added considerable acreage at the point and raised the general elevation of the reservation along the sides.

During the past decade, the Washington District constructed bachelor officers' quarters, a recreation building and a temporary office building. Considerable renovation and modernization of the buildings erected in the early part of this century was accomplished and a new auditorium was provided in the War College building.

Annual Reports

Chief of Engineers

Washington City and Capital

American Guide Series, 1937, G.P.O.

The Book of Washington

by Cleland C. McDevitt, 1927

Rand, McNally and Company's Handy Guide

to Washington and the D. C., 1896,

by Ernest Ingersoll



Main Entrance

WASHINGTON DISTRICT OFFICE

By Congressional authorization of June 3, 1896, the following provision appears under the caption "Improving Potomac River, Washington, District of Columbia * * : That for carrying on said improvement, the rental of an office in the City of Washington, District of Columbia, at a rate not to exceed eighty-five dollars per month, is hereby authorized when no public building is available, * * ." This ceiling limitation was repealed in the Act of July 25, 1912.

The District office moved ten times in the forty-three years preceding 1940. Four times private dwellings were occupied; a commercial office building once; an abandoned garage once and government-owned space four times.

Early in 1938, approaching shadows of World War II indicated that the Navy Department would need the space occupied by the Washington District office in that building for Navy Department activities. The problem was therefore presented to the Chief of Engineers by Colonel R. S. Thomas, District Engineer, in March 1938, suggesting that a solution could be found in converting the space occupied by the boiler room and coal vault in McMillan Park pumping station to office quarters for the District office. Approval of Congress was obtained in the River and Harbor Act of June 20, 1938, to remodel the old pumping station in McMillan Park as recommended. Plans were prepared by John P. Bills, Architect-Engineer in the office, in accordance with which a modern fireproof brick and concrete building was constructed, providing approximately seventeen thousand square feet of floor space. The office moved to its new quarters on February 20, 1940.

With the advent of World War II, these quarters became inadequate for the added personnel and five large wooden annexes for office purposes, a mobilization type mess hall, and some auxiliary wooden buildings were constructed.

For the first time, the Washington Engineer District has a modern home, overlooking the McMillan Reservoir with a very pleasing environment.

Office Files

POTOMAC RIVER

The story of this scenic waterway is replete with legends and accounts of the part it played in the settlement, development and progress of this country.

Earliest accounts of the Potomac River indicate that the aborigines called it "Co-hon-go-roo-ta"; Spanish explorers named it "Espirita Santo"; the first English explorers named it "Elizabeth"; and Lord Calvert's pilgrims named it "St. Gregory". It was also known as the "Potomeack", "Patawomeck" and "Potowmack". The Spanish are reported to have sailed up the river in 1565; Captain John Smith explored it in 1608; and Henry Fleet, in an account of his trip on June 26, 1631, states that he anchored his boat "two leagues from the falls." He also observed that "This place, without question, is the most pleasant and healthful place in all this country and most convenient for habitation, the air temperate in summer and not too violent in winter * *. Above this place, the country is rocky and mountainous like Cannida." Many years later, Sir James Bryce was impressed with the natural beauty of the Potomac River and gave expression to the thought that he knew "of no great city in Europe (except Constantinople) that has quite close * * such beautiful scenery as has Washington * * in many of the woods that stretch along the Potomac on the north and also on the south side, with the broad river in the center and richly wooded slopes descending boldly to it on each side."

The Potomac River was selected by General Washington as a suitable place for the Capital City principally because of its navigational advantages. Such ports as Alexandria, Georgetown and Bladensburg (also known as Garrison's Landing) had been established many years prior to 1800, with ocean borne trade. General Washington took a personal interest in the navigational possibilities of the river and perfected plans for extending navigation to Cumberland by means of lateral lock canals around Great and Little Falls. They were the first lock canals constructed in the United States and some of the old ruins remain as a fitting memorial to Washington, the engineer. His dream of a water route to the Ohio River has never materialized but is considered practicable.

Navigational advantages of the Potomac River, which played such an important part in the plans of General Washington, were not without accompanying problems for the young capital. As early as 1805, records reveal that "mud-machines" were engaged in removing the shoals which were beginning to appear in the river opposite Washington. A form of jetty was constructed to reduce the cross-sectional area and increase velocities in the main channel. Below the point where Rock Creek empties into the river, a width of about five thousand feet formerly existed in the Potomac, but as more and more of the watershed was cleared, the sediment brought downstream caused shoaling and the formation of flats in front of the city.

Improvement of the river was undertaken by the Federal government in 1833, to aid the citizens of Georgetown in widening and deepening the cut through the bar below the town, in building a free turnpike on the Virginia shore and in purchasing and making free the bridge at Little Falls. Forty years later the first money was provided by Congress to be applied solely to navigation, under which the Washington and Virginia channels were dredged and improved. In 1882, operations were started for the development of the Washington Harbor, resulting in the formation of Potomac Park, with its Tidal Basin, and Columbia Island. This work was inaugurated by Colonel Peter C. Hains, after whom the southerly end of Potomac Park is named. After the fill comprising the park had dried out, the heavy undergrowth afforded cover for small game. Around the turn of the century, men in hunting togs, with gun and dog, were a familiar sight as they sought their quarry in the thickets of the reclaimed area.

Virtual completion of the works in Washington Harbor provided recreational areas and suitable approaches to Arlington and the George Washington Memorial Parkway. The President's Cup Regatta is an annual feature held in the Virginia Channel bordering Potomac Park.

Reclamation of the marshes and flats in and along the river not only improved navigational facilities but also provided miles of driveways in view of the water, ample space for outdoor sports and appropriate settings for national memorials, shrines and other structures. Due to the instability of the deep layer of silt overlying the rock in this area, engineering problems were

involved in securing suitable foundations for building. Not only that, but there was some reaction to placing beautiful structures in the swampy area along the river. Opposition was voiced in one instance to the placing of the memorial to Abraham Lincoln in that marshy swamp (Potomac Park), where it would "shake itself down with loneliness and ague." This area has provided a suitable setting for groves of cherry trees, first presented to this country by Japan as an expression of international good will.

To the public in general the Tidal Basin is but an attractive inland lake framed by cherry trees and world famous memorials and park drives. It is more than this. Actually the basin serves as a reservoir for tidal water which enters through automatic gates from the Virginia Channel of the Potomac River and discharges it through one-way gates into Washington Channel to flush this dead-end estuary twice daily to prevent stagnation of the water along the city water front.

Other than studies, no action has been taken toward harnessing the river for power. A limited amount of power has been developed in the upper reaches of the river by small private enterprises. Flood control works have been undertaken for protection of farm lands in Virginia and West Virginia; for the city of Cumberland, Maryland; Bridgewater, Virginia; and Washington, D. C.

Downstream from Washington, navigability to twenty-four feet in depth has been provided to the mouth. Channels have been provided and maintained to such well-known places as the Navy Yard, Alexandria and Mt. Vernon.

The history of the entire river from its source in the mountains to its mouth at Chesapeake Bay tells a romantic story, inextricably woven with the birth and progress of the nation.

Washington City and Capital,
American Guide Series, 1937, G.P.O.
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Seventh Street and Pennsylvania Avenue, 1889 Flood

FLOODS AND DISASTERS

The lowlands adjacent to the Potomac River have been subjected to inundation since the days of the early settlers. While it is probable that the valley has experienced floods since the beginning of time, the frequency and severity of damaging floods have been accelerated by the acts of man in the clearing of forests, building of cities, construction of channels, and other works which tend to increase and accelerate the run-off of rainfall.

Early records describe conditions resulting from serious floods in the Potomac Valley in 1870 and again in 1889. The latter flood was the greater of the two, causing extensive damage throughout the upper basin and in the Washington area. Flood waters entered Washington and flowed down Pennsylvania Avenue to the Anacostia River near the War College by way of Canal Street. During the 1889 flood, those interested in getting a thrill rode in the one-horse street cars operating on Fifteenth Street and Pennsylvania Avenue for the munificent sum of a car ticket sold at the rate of six for twenty-five cents. It was necessary to stand upon the seats to avoid getting wet.

Three major floods and several of lesser magnitude have occurred during the present generation. The flood experienced in 1936 was the largest of record and inflicted damages estimated to total over twelve million dollars through the basin. Damages in the city of Washington were approximately four hundred thousand dollars. Damages resulting from the 1942 flood totaled about one and a half million dollars throughout the flood area, of which over eight hundred thousand dollars was in Washington. The city of Cumberland, Maryland, hard hit by the floods of 1924 and 1936, experienced damages amounting to over two million dollars and four million dollars, respectively, as a result of these floods.

Recognition of the flood problem was brought to the fore in 1927, when Congress called for reports on the streams in the Potomac River Basin to determine the possibilities of flood control, power, irrigation and navigation. Through a succession of surveys, reports, and subsequent legislation, Congress has authorized the construction of flood protection works on the North

Branch of the Potomac River and Wills Creek at Cumberland, Maryland, on the Anacostia River at Bladensburg, Maryland, and at Washington. The project at Cumberland is about twenty-six percent complete. Permanent protection has been partially completed for the city of Washington. Complete protection must await the removal of temporary government buildings in the Mall area. Emergency measures, however, are planned to prevent flooding of the low areas in the city, pending completion of the project.

A small flood control project has been constructed by the Washington Engineer District at Bridgewater, Virginia, to protect a portion of the town from recurring floods in the North and Dry Rivers, which had inflicted severe damages in the town annually. Following a disastrous flash flood in June 1949, on the South Branches of the Shenandoah and Potomac Rivers, the Washington District made emergency repairs to farm levees at thirty-two locations in the Moorefield and Petersburg areas of West Virginia and in an isolated area at Stokesville, Virginia.

Planning for flood protection, as in all cases of major disaster, is promoted by the occurrence of floods. Thus, the 1924 flood on the Potomac River at Washington led to the preparation of an emergency flood plan for the protection of the city of Washington. Under this plan, the Washington District was designated to coordinate the interests of the various Federal agencies and business firms in constructing protective works and otherwise preventing damages from a recurrence of floods. Similarly, the major floods of 1936, on the Potomac and lower Ohio Rivers led to the extension of planning to cover flood emergency measures for the Potomac, Rappahannock and Patuxent River basins in the Washington District. Flood emergency manuals, describing activities of the Corps of Engineers and local and Federal agencies, were prepared.

The manual for the city of Washington was published in 1930. The manual covering the Potomac, Rappahannock and Patuxent River basins, listing communities subject to flooding, key personnel in organizations throughout the basins, and plan of activities for floods, was published in 1945. Since 1945, the manuals have been revised annually. In both manuals, the District Engineer determines the nature and severity of the flood emergen-

cies, basing his determination upon flood predictions furnished by the United States Weather Bureau, advises local interests as to probable areas in which flooding can be expected and recommends emergency measures to protect life and property.

The plan and organization as outlined in the Flood Emergency Manual functioned during the floods of 1936 and 1942, and during a threatened ice jam in the Potomac River at Washington in February 1948. For continuous periods of approximately seventy-two and fifty-six hours, the flood emergency organization of the Washington District was on duty to supervise and coordinate activities during the floods of March 1936 and October 1942. During these periods, emergency sand bag levees were constructed for the protection of the city of Washington and patrols were dispatched to observe and report conditions in critical waterfront areas. Rental of construction and pumping equipment was coordinated for the purpose of protecting Federal and commercial property throughout the Washington area, rainfall and river stage predictions furnished by the Weather Bureau and field observers at hourly intervals throughout the day and night were studied and earlier estimates as to areas to be flooded were revised accordingly. Throughout the periods, inquiries were handled from many individuals and varied interests, including the press, radio, utility and commercial firms and Federal agencies. Following the floods, survey parties were sent throughout the basin to record flood heights, observe damages, and collect information considered to be useful in future flood emergencies.

The Washington District has rendered assistance on occasions requiring the technical skill and equipment of the Corps of Engineers.

Typical examples of such emergencies are --

When the roof of the Knickerbocker Theatre collapsed during a heavy snow storm on January 28, 1922, during a show, a crew with mechanical equipment from the Washington District engineer shops was dispatched to the scene for rescue work.

During a severe rain storm in 1933, an abutment of the Magruder Railroad Bridge across the Anacostia River near the District Line collapsed, causing a locomotive

to hurtle into the opposite bank and cars to plunge into the river. Washington District personnel and equipment rendered aid in the emergency.

On several occasions when planes crashed in or along the Potomac and Anacostia Rivers, help was extended in the rescue work.

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NAVIGABLE WATERS

The River and Harbor Act of 1899 established laws for the protection and preservation of the navigable waters of the United States. Related Acts, both prior and subsequent to this one, covered such specific items as establishment of anchorage grounds, control of beach erosion, and pollution of coastal navigable waters. All of these laws imposed on the Secretary of War responsibility for their enforcement. In turn, the duty was assigned to the Chief of Engineers for fulfillment.

Waterways properly controlled and improved contribute greatly to the development and progress of any nation. Rapid growth of population in the United States has increased the demands on its waterways, both inland and coastal, and made it incumbent on municipalities, States, and the Congress to keep them open, safe, and usable for navigation. Approval of location and plans must be obtained for placing bridges over navigable streams; structures of any kind cannot be placed in these waters without authority and approval; filling or excavating which might alter or modify the stream in any manner is prohibited without prior approval; injurious deposits or discharge into the waters are prohibited; anchoring of vessels in channels is prohibited; and floating of loose timber and logs is strictly controlled. A brief review of some of the activities in the Washington District pertaining to these requirements are presented here.

Fish Stakes

Growth and competition in the sea food industry in the Chesapeake Bay and tributary waters around the turn of the century produced certain hazards to navigation interests. Fish stakes and nets appeared in increasing numbers. In the effort to secure more advantageous placement for larger and quicker hauls, the fishermen encroached on navigable channels to the detriment of other users.

Shortly after the turn of the century, a Chesapeake Bay Fish Stake Board was appointed by the Chief of Engineers, with the District Engineers of Baltimore,

Norfolk and Washington as members. This Board established limit lines for the placing of fishing structures, marked by special buoys set and maintained by the Coast Guard at the request of the Corps of Engineers. Regulations governing the placing and operation of fishing structures were adopted. Seasonal patrols of all areas are maintained by the respective Engineer Districts to help interested parties and insure compliance with the regulations. Patrol and inspection is made of approximately one thousand fishing structures in the Washington District over approximately six hundred miles of waterways. Favorable reaction to the working of this system has been shown by the tidewater interests.

Occasionally, a dissenting voice is heard. Colonel R. S. Thomas, Washington District Engineer, once received a letter from an irate fisherman who objected to the whole scheme and stated that "every time we have a Democratic Administration, they are always trying to see how much trouble they can make." He further complained about an oyster dredger destroying some of his fish nets and during the ensuing litigation, "the old dredger had so much trouble he went and hung himself." The fisherman ended his letter with "Go and do thou likewise."

Harbor Lines

The need for more comprehensive planning and control of structural development along the water fronts was met by Congress enacting legislation in 1886, making such work subject to the approval of the Secretary of War. Subsequent legislation amplified and extended the requirements. Harbor lines in combination with pierhead and bulkhead lines are established as the needs of any given locality require, after public hearings are held to give all interested parties an opportunity to be heard. At this time, harbor line requirements are in force for about six localities in this area. Those for Washington, D. C. are the joint responsibility of the Federal and District authorities. Modifications of the established lines are made when required by changed conditions.

Beach Erosion

Accretion and erosion are age old processes in the eternal conflict between land and water. Interesting from a geological standpoint, they did not pose much of a problem for man in early times. However, as civilization advanced and costly development of coastal areas increased, the loss of a relatively few feet of beach assumed a significance that could not be ignored. Taxable values of property became endangered. Many devices were adopted by municipalities, counties and States and large sums of money expended to combat recession of shore lines. The variety of measures adopted and the variance of opinions on effectiveness appeared to make solving the problem seem futile. However, borrowing on the experience of England, Congress was urged to establish a central agency to specialize in coastal engineering for control of beach erosion. As a result of this evident need, the Congress of the United States authorized a Beach Erosion Board to function under the Chief of Engineers and to serve in an advisory capacity to States and municipalities on shore erosion problems. Through this organized effort, practical and technical knowledge has become available.

A Sand Movement and Beach Erosion Board, established by the Chief of Engineers in 1929, was replaced by the Shore Protection Board and Beach Erosion Board, under the legislative provision of 1930. Some sixteen years later the Shore Protection Board was abolished, leaving the Beach Erosion Board as the functioning agency.

This Board has seven members, four of whom are officers of the Corps of Engineers and three civilians. Headquarters of the Board is on Dalecarlia reservation, MacArthur Boulevard and the District Line. It maintains a large library and receives assistance from District and Division offices in surveys, aerial photography and other field work. Coasts of every State on the eastern seaboard have been studied. On the west coast, the range of studies extends from the Strait of Juan de Fuca to the Mexican Border. The Gulf of Mexico has been substantially covered. Our inland seas, the Great Lakes, are studied. Puerto Rico, Alaska and Hawaii are served by the Board. During the war, military and naval research programs were carried on by the Board in connection with naval and amphibious warfare.

The first wave tank was installed by the Board at Fort Belvoir in 1932, and large tanks and a test basin have been provided near the office of the Board on Dalecarlia reservation for experimental purposes. Amphibious trucks, with supersonic sounding devices and two-way radios are employed in general field investigation and research.

As Congress provides required funds, research and development of beach erosion technique will be continued and expanded to aid man in his struggle against the encroachment of the sea.

Examinations and Surveys

Operations of this type usually precede all civil work performed by the Corps of Engineers. They arise from requests made upon the national legislature for public improvements. If favorably considered, items are placed in authorization bills, requesting the Secretary of War to cause required examinations and surveys to be made. Reports are then rendered to Congress with estimates of cost for the proposed project.

More than two hundred such reports for a variety of undertakings have been submitted by the Washington District in the past seventy years. As a result of these studies, approximately fifty projects have been authorized for improvement of harbors and channels within this District and for some others transferred to other Districts. Of particular interest are those relating to the Potomac and Anacostia Rivers and the Rappahannock and James Rivers in Virginia.

Similar preliminary studies have been made for water supply structures, bridges, marinas, and reclamation work. Accounts of these appear elsewhere in this summary.

Removal of Wrecks

Of the numerous hazards encountered by mariners, the unseen obstructions lurking beneath the surface present deadly peril. Constant vigilance is required, not only by the pilot of a craft but also by the District Engineer in whose jurisdiction the waters lie. Congress, aware of the danger to navigation created by

sunken vessels, boats, rafts "or other similar obstructions", and the urgency for relief to navigation interests, allows on a permanent, indefinite basis, the expenditure of necessary funds for the removal of obstructions from navigable waters. When the District Engineer has knowledge of obstructions, the locality is marked by buoys placed and maintained by the Coast Guard until removal of the obstruction has been effected. In some instances, available government plant is used and in others a contract is entered into with private parties for removal of obstacles. In 1927, the Washington District cleared the Bay, near the mouth of the Potomac River, of the CITY OF ANNAPOLIS, a two thousand-ton steamer sunk by collision.

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Beach Erosion Board Files

Office Files



Old Long Bridge

WAGON ROAD OVER OLD LONG BRIDGE

One of the numerous problems confronting Colonel Peter C. Hains, District Engineer, when he took station in the Washington District in 1882, was the pressing need for alleviating damages to the old Long Bridge, and to the water front in general, from recurring floods caused by the type of structure involved. As he stated, "The trouble is not that there is a bridge at this place. It is because of the faulty construction of the bridge." Among the suggestions considered was the separation of the wagon road from the railroad on that portion of Long Bridge between the north side of the Virginia Channel and the foot of Maryland Avenue.

Therefore, pursuant to a Senate Resolution of March 7, 1890, the Secretary of War was requested to make a study of the desirability of effecting such a change.

Long Bridge was originally built in 1809 by the Washington Bridge Company, under an Act of Congress which also provided for the collection of tolls. At that time there was no causeway between the Washington Channel and the main, or Virginia Channel. The bridge was destroyed, or partially destroyed, several times by ice or freshets, and was acquired by the Baltimore and Potomac Railroad Company in 1870, which was authorized to extend its tracks across the bridge and maintain it for railway and ordinary travel. A single track was used and the wagon road paralleled it the entire distance. At one point there was barely room enough for a single wagon and a single train of cars to pass. It is interesting to note that the observation of Colonel Hains at that time "Indeed, a wagon road and a railroad on one and the same bridge is always objectionable and is only tolerated from necessity" was corroborated in about two decades by the construction of separate bridges for railroad and highway traffic in the vicinity of the Long Bridge.

However, in specific compliance with the request made by the Senate Resolution, Colonel Hains presented a plan for separating the wagon road and the railroad, together with a plan for a new bridge across the Potomac River, as a substitute for the existing bridge.

The final chapter in the century-long and colorful history of the Long Bridge was written on February 12, 1906.

On the above date, Congress enacted comprehensive provisions for the removal of the old Long Bridge because it was inadequate for increased railroad and vehicular traffic and in a measure obstructive to navigation. Elimination of grade crossings in the city were required as part of the plan. The Baltimore and Potomac Railroad Company was directed to construct a railroad bridge. The Secretary of War was authorized to build a substantial bridge of iron or steel for highway traffic. Both bridges were to be provided with draws so as not to impede navigation. The Highway Bridge was constructed by Colonel Chas. J. Allen, in charge of the Washington District, at an approximate cost of one million two hundred thousand dollars and was opened to traffic on February 12, 1906. It is still in use as a one-way bridge. A more modern highway bridge was constructed a short distance downstream by the District of Columbia at a cost of nearly six million dollars and opened to one-way traffic on May 9, 1950.

Annual Report for 1890
Chief of Engineers
Office Files

AQUEDUCT BRIDGE

By Act of Congress of May 26, 1830, authorization was granted for incorporation of the Alexandria Canal Company. The company was empowered to complete a "canal, from the termination, or other point on the Chesapeake and Ohio Canal, to such place in the town of Alexandria, * * and also to appoint * * tollgatherers, managers and servants * *."

" * * to be applied to the construction of an aqueduct across the river Potomac, at or near Georgetown, in the District of Columbia * *," Congress, on June 25, 1832, "required" the Secretary of the Treasury to pay one hundred thousand dollars to the Alexandria Canal Company.

By an advance of three hundred thousand dollars to the same company under Act of March 3, 1837, to complete "the said canal to the town and harbor of Alexandria," The United States became a stockholder in the company, and for many years was represented by proxy at the meetings of the Chesapeake and Ohio Canal Company.

Constructed on stone piers of Potomac River gneiss, the superstructure was of wooden Burr-truss type. On this truss, a flume of Kyanized timber was laid to carry water for the canal. The bridge was known as the "Potomac Aqueduct." Towpaths and a limited roadway over the bridge were provided. Heavy blocks of gneiss for the pier were quarried from the hillside about one mile below Little Falls. It is reported that stone from this site was also used in forming the artificial island in Hampton Roads, Virginia, on which Fort Wood was built. This stone was shipped in sailing vessels which plied that portion of the Potomac River before the construction of the Aqueduct Bridge. Completion of the Aqueduct Bridge enabled canal boats of the Chesapeake and Ohio Canal Company to proceed from Georgetown, with their cargoes from the upper Potomac River region, to deep water at Alexandria for transfer to ocean-going ships.

In 1866, operation of the aqueduct was taken over by some lessees under a ninety-nine year lease, who were authorized by Congress two years later to erect and maintain, in connection with the aqueduct, a highway bridge, and to charge certain specified tolls. They built a new

structure of Howe-truss forms strengthened by arch ribs. The trough of the aqueduct and the towpath rested on the lower chord and a highway and footpath rested on the upper chord.

Some of the tolls exacted by the lessees were: -- two cents for foot passengers; five cents for any horse, mule or jack, any ox or other horned cattle; fifteen cents for any vehicle drawn by one animal; twenty-five cents if drawn by two animals; one cent for any hog, sheep or other live creature. Certificates of tolls were required to be published for three weeks in two daily papers in the city of Washington at the expense of the company. The only exception to charging tolls was the proviso "that said bridge is open and free for the passage of troops and munitions of war by the United States without charge or compensation of any kind." During the War between the States, the aqueduct was used by the United States military authorities, the water being drained from the trough and a roadway laid upon the floor.

After the War between the States, there was increasing clamor for a free bridge because of what was regarded as exorbitant tolls charged by the lessees. All other bridges which afforded access to the city of Washington had been purchased by the United States and were open to the public free of charge. Finally, by Act of February 23, 1881, Congress authorized the purchase of the existing bridge or the construction of a new bridge near the "Three Sisters" just above the Aqueduct Bridge. Although the lessees were inclined to accept the offer of the government, the stockholders of the Alexandria Canal Company "refused to accept the act of Congress."

In the report submitted by the United States Agent charged with the study of the bridge, it was stated that "Inasmuch as the free bridge may in the future be subjected to severe strains by droves of cattle, by the passage and crowding of large bodies of people visiting government reservations or witnessing regattas upon the river, or by the passage of troops and heavy ordnance in time of war, I am satisfied that the capacity or live load of the bridge should not be less than the Anacostia Bridge."

The bridge continued to be used as a highway until the latter part of 1886. An order of the Commissioners of the District of Columbia declared the old structure unsafe for public use and it was closed to all travel except pedestrian.

In that same year Congress again authorized the purchase of the bridge. Deed to the bridge was recorded in the land records of the District of Columbia December 24, 1886 and then sent to Alexandria for recording in the office of the county clerk. The deed was recorded but the clerk refused to return it to Colonel Hains, the District Engineer, except upon the payment of a tax of one hundred twenty-five dollars levied by the state of Virginia. By decision of the Attorney General, the tax was paid and the clerk surrendered the deed. Work of reconstruction was so nearly completed by June 30, 1888, that the bridge was again open to public travel. On September 15, 1888, custody of the bridge was transferred to the District Commissioners. Earlier completion of the work was prevented by difficulties, not uncommon to later generations, in obtaining deliveries of materials and supplies, as we note that "the rolling mills were overcrowded with work and much delay in filling orders was the result."

Although custody of the new bridge was entrusted to the District Commissioners, the Washington District retained responsibility for its repair and upkeep. From that time to the completion of the Francis Scott Key Bridge, piers and abutments were repaired or replaced. Many cavities and defects developed in the old masonry work. Divers found holes in the subaqueous portions large enough to crawl into and debris of various kinds was found embedded in the old piers.

When authorization was granted for the Key Bridge, removal of the Aqueduct Bridge was included, but funds were insufficient to remove all of the old structure. During the administration of Franklin D. Roosevelt, enough emergency funds were made available to remove the old piers remaining in the river to about six feet above mean low water. These piers are now all that remain to remind one of the historic old Aqueduct Bridge. The stone removed from the old piers was broken up, loaded on scows and transported to Anacostia Park where it was deposited in trenches as foundation for the seawalls.

Annual Report for 1901
Chief of Engineers

BRIDGE ACROSS THE EASTERN BRANCH
OF THE POTOMAC RIVER, DISTRICT OF COLUMBIA

One of the earlier projects assigned to the Washington District provided for the construction of a bridge across the Eastern Branch, otherwise called the Anacostia River, at the foot of Pennsylvania Avenue, Southeast. Work was started in September 1887, and the bridge opened to traffic in March 1890. It was constructed of iron, resting on masonry piers, and provided with a through span of ninety feet over the tracks of the Baltimore and Potomac Railroad Company. To furnish a proper width on the deck of the bridge, it is recorded in Mr. Duncklee's report to Colonel Peter C. Hains, District Engineer, that "The roadway should be at least twenty-four feet wide to allow at times three lines of ordinary vehicles to be abreast, to allow room for passing loads of hay and wide vehicles used in this vicinity for the transportation of farm products, and also, to give room for the management of horses who may be frightened by trains on the Baltimore and Potomac Railroad." In the light of future developments, those thoughts appear somewhat quaint.

There were delays in completion of the work caused by objections of the Baltimore and Potomac Railroad Company to certain provisions of the plans and by difficulties in obtaining stone for the piers. Most of the stone had been quarried and cut at the Seneca quarries on the Chesapeake and Ohio Canal. The canal was closed to navigation by the great freshet of June 2, 1889, and the contractors were obliged to haul the material across the country in wagons to a station on the Baltimore and Ohio Railroad, thence to Washington by rail. Fifty years later, this bridge was replaced by a modern structure built under the supervision of the District of Columbia.

Annual Report for 1890
Chief of Engineers

BRIDGE ACROSS THE ANACOSTIA RIVER

Up to the close of the nineteenth century, there were four bridges spanning the Anacostia River within the limits of the city, only one of which had a draw-span. A trestle bridge owned by the Baltimore and Potomac Railroad Company was located near the end of the Bennings Railroad Yard. Two municipal highway bridges with wrought-iron superstructures spanned the river - the Bennings Bridge in line of H Street, east, and the Pennsylvania Avenue Bridge in line of Pennsylvania Avenue, southeast. Downstream about two miles above the mouth of the river, the Navy Yard Bridge crossed on the axis of Eleventh Street, southeast.

In 1897, Congress authorized a study to be made for a bridge to cross the Anacostia River on the axis of Massachusetts Avenue, one of the widest and longest thoroughfares in the District of Columbia, extending from boundary line to boundary line when completely developed. On the west side of the river, it would be necessary to extend the avenue through the reservation occupied by the District jail, almshouse, workhouse, and other utilities. To the east of the river, the land was largely undeveloped, heavy undergrowth covering the terrain which would be required for the bridge and approaches. The modest sum of three thousand dollars was appropriated to make studies, test borings, surveys, and prepare a report on a bridge "to accommodate the ordinary traffic which passes over an ordinary highway, and also the tracks and traffic of any street railway or railways employing horses or electric or mechanical motors (not steam-operated motors) for the propulsion of its cars * *." Wages of seventy-five cents to one dollar per day of ten hours or more work permitted the study to be made with the funds allowed. In making the borings, no rock was encountered, but beneath a stratum of mud up to thirty feet in thickness, compact red clay was found in varying depths up to fifty-two feet.

Colonel Chas. J. Allen, District Engineer, recommended a steel truss bridge resting on masonry piers, without a draw, having a width of fifty-two feet between railings and total length of two thousand, five hundred seventeen feet, including approaches. Cost of

the project was estimated at approximately four hundred fifty thousand dollars.

Due to rapid growth of the city, advances in modes of transportation, early subsequent adoption of comprehensive plans for the future development of Washington and other considerations, the project was not adopted.

Fifty years later, provision was made for a monumental bridge to cross the river in that vicinity, but the east-west dividing line of the city was chosen and authorization granted for a bridge, including underpasses and approaches, on the axis of East Capitol Street, to cost approximately sixteen million dollars.

Annual Report for 1898

Chief of Engineers

House Doc. 140, 55th Cong., 2d Sess.

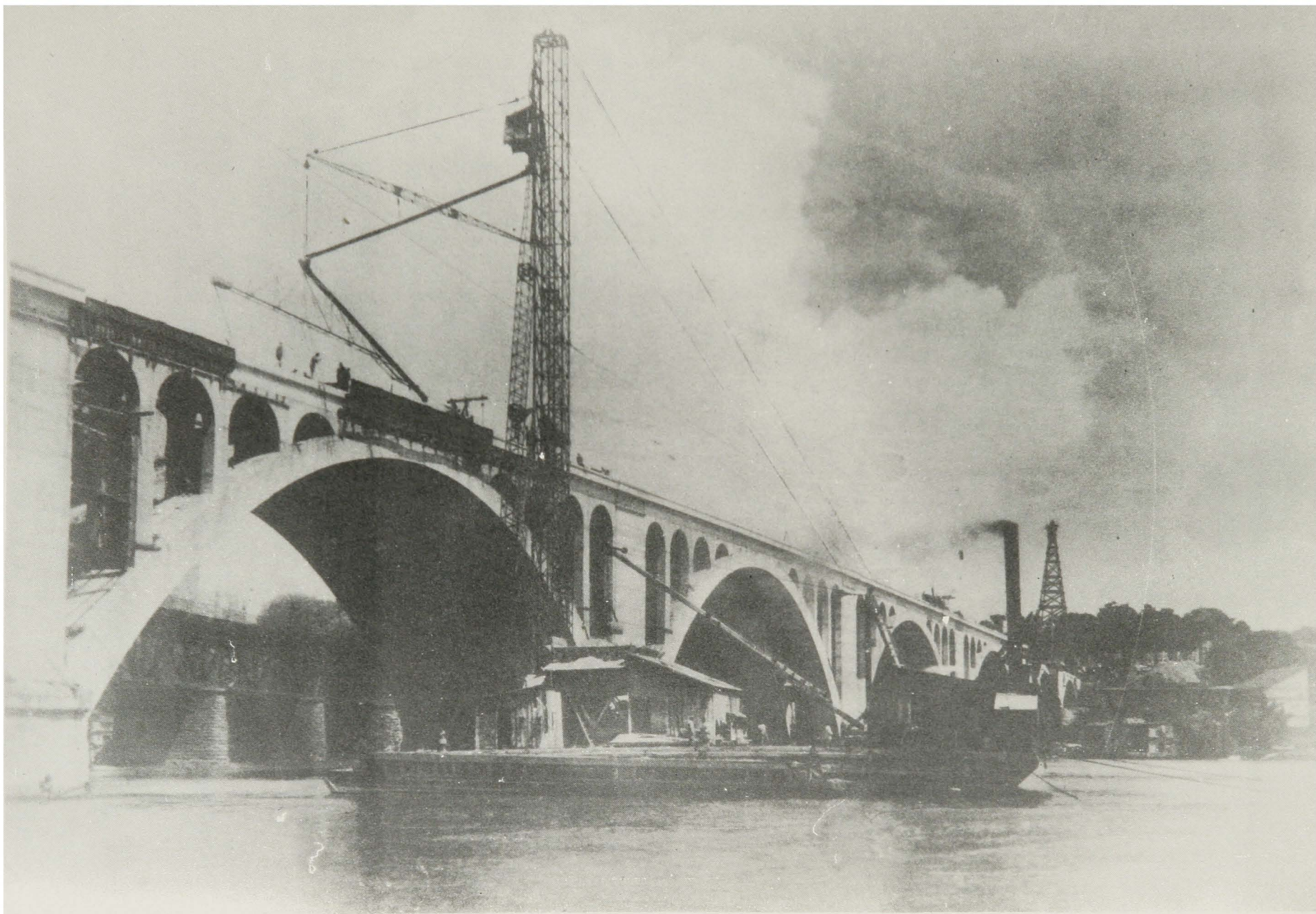
BRIDGE OVER ROCK CREEK

In his study of the proposal for a bridge over Rock Creek on the line of Massachusetts Avenue, Captain D. D. Gaillard gave careful thought to the surroundings of the site and what the future requirements might be in that section of Washington, which was sparsely developed at that time. He envisioned something more than a mere utility structure and decided that increased emphasis should be placed upon appearance. A deep gorge divided the city on the line of a thoroughfare traversing the entire District of Columbia from southeast to northwest. Imposing residences were located around Dupont Circle, less than a mile from the proposed crossing. Therefore, any plan for a bridge should be in harmony with the fashionable residences and the picturesque landscape afforded by the deep ravine and surrounding wooded slopes, which gave to the vicinity a rural appearance not available in many places. Anything less than an artistic, substantial stone structure would not fulfill the envisioned development of the future. As years passed, the foresight and vision of Captain Gaillard were proven to be well founded. Half a century later, an artistic concrete arch bridge, faced with stone, was constructed across the valley.

Annual Report for 1898

Chief of Engineers

House Doc. 163, 55th Cong., 2d Sess.



Francis Scott Key Bridge

KEY BRIDGE

The Key Bridge crossing the Virginia Channel of the Potomac River at Georgetown, D. C., is a monumental structure of historic interest, replacing the equally historic Aqueduct Bridge. Constructed by the Washington District office, under the supervision of Major Max C. Tyler, District Engineer, during the period 1917-1923, it is an inspiring landmark and an enduring symbol to the author of our national anthem, who lived at one time in a house near the approach to the bridge. Nathan C. Wyeth, Architect, assisted the office on the designs, in consultation with the Commission of Fine Arts. Due to the emergency of the first World War, the Secretary of War determined that the bridge was a military necessity and authorized its construction by hired labor, rather than by contract.

Actual construction involved some interesting engineering problems. Cofferdams of wood were built, towed to position and sunk to solid rock for the concrete pours of the substructure. Steel sheeting was driven around the wooden frames. For the arches of the superstructure, specially fabricated giant steel arch-rib centers were floated into place on heavy trestles supported on scows. This was a hazardous operation due to unwieldy size, eddying currents and the unrelenting pressure of ice during the winter months. Several lives were lost throughout the period of construction. Perilous climbing over the tops of these arches by Major Lunsford E. Oliver, in local charge of the work, to effect proper adjustments furnished an interesting sight for onlookers.

Concreting of the piers and abutments was carried on by two plants - one by a cableway extending over the entire river from the Washington side to the Virginia shore and one by an elaborate mixing plant placed on two large scows supporting a steel tower.

Total cost of the bridge and approaches was approximately two and one half million dollars. It was opened to traffic on January 17, 1923.

Two marble tablet markers were placed at the center of the bridge on the east and west balustrades, respectively, bearing the following inscription:

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.....  
:  
:      Built by      :  
:  
: Corps of Engineers, U.S. Army :  
:  
:      1917-1923      :  
:  
:      _____      :  
:  
: FRANCIS SCOTT KEY   :  
:      BRIDGE         :  
:  
:.....
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A marble tablet was placed on the end wing of the west balustrade nearest M Street on the Washington side by the National Society, United States, Daughters of 1812, bearing the following inscription:

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.....  
:  
:      This bridge is named in honor of      :  
:      Francis Scott Key                      :  
:  
:      Author of the Star Spangled Banner    :  
:      September 14 1814                      :  
:  
:      "Then conquer we must for our cause is just :  
:      And this be our motto, 'In God is our trust.'" :  
:  
:      Erected by the National Society        :  
:      United States, Daughters of 1812, April 21 1924 :  
:  
:.....
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Upon completion, the bridge and approaches were turned over to the Commissioners of the District of Columbia for administration.

Annual Report for 1925
Chief of Engineers

ARLINGTON MEMORIAL BRIDGE

Recognition of the need for an additional bridge across the Potomac River at Washington about midway between the Aqueduct and Long Bridges was voiced by Congress in 1886, when a resolution of the Senate called upon the Secretary of War to examine and report upon the expediency of constructing a government bridge from a point at or near the foot of New York or New Hampshire Avenue to a point on the United States National Cemetery grounds at Arlington, Virginia. A study and report was submitted by Colonel Peter C. Hains, District Engineer. At that time the Aqueduct Bridge was not a free bridge and its future was uncertain. As for the Long Bridge, it was too far for pedestrians to reach the vicinity of the Arlington Cemetery by that route and furthermore, it was considered to be "unsafe for carriages drawn by spirited horses" and too narrow to afford proper facilities. In this instance, as in others, whenever the question of bridges over the Potomac River was broached, one of the prime considerations was navigation interests and possible interference with sailing vessels in their trade at the port of Georgetown. Sufficient clearance to pass seagoing vessels would require too great a height to be either feasible or desirable. One proposal to accomplish this was presented by Major Symons for a structure from Observatory Hill to Arlington.

In 1890, another study and report was made by Colonel Hains in response to a resolution of Congress adopted that year for consideration of a bridge from the foot of New York Avenue to the United States National Cemetery grounds at Arlington.

Major Chas. E. L. B. Davis, District Engineer, made additional reports on the subject in 1892 and 1895.

It is to be noted that Congress appeared to have in mind during the early years of consideration, only a bridge to accommodate traffic, a utilitarian structure, but toward the close of the nineteenth century, designs for a "memorial bridge" were called for. Under the Act of March 3, 1899, Colonel Chas. J. Allen, District Engineer, secured designs and estimates for a memorial bridge.

No further action was taken by Congress to authorize construction of such a bridge until the Act of March 4, 1913, created the Arlington Memorial Bridge Commission. Not until June 1922, however, did Congress provide funds for the Commission to function. Lieut. Col. C. O. Sherrill, Corps of Engineers, the officer in charge of Public Buildings and Grounds, was made Executive and Disbursing Officer of the Commission and supervised the work.

Construction of the bridge was begun in 1926 and completed in 1932, at a cost of approximately fifteen million dollars. It joins the Lincoln Memorial with the former home of Robert E. Lee at Arlington and is indeed a "symbol of the union of North and South as well as the pathway between Lincoln and the soldier dead." Furthermore, as a connecting link with the Mt. Vernon and the Lee Highways on the Virginia side and the extension of the speedway and Rock Creek driveway on the city side, it fulfills all the requirements of a true memorial and the needs for traffic communications.

Annual Report for 1900
Chief of Engineers

OLD PENSION OFFICE

A Congressional Act of August 7, 1882, reappropriated funds for the erection of a brick and fire-proof building to be used and occupied by the Pension Bureau on such government reservation in Washington, D. C., "as may be selected by the Secretary of the Interior, the Secretary of War, and General M. C. Meigs, subject to the approval of the President: * *," as a memorial to the veterans of the Civil War.

The northern side of a tract of land containing about nineteen acres comprising Judiciary Park was selected and work begun in 1883, upon plans prepared by General Montgomery C. Meigs, Supervising Engineer and Architect. These plans were approved by Robert Todd Lincoln, Secretary of War. A red-brick building measuring two hundred by four hundred feet, four stories high, and containing one hundred seventy-six rooms, was erected. The building has been called "a cross between a Wisconsin barn and a Roman bath." It is recorded that when General Sheridan was told the structure was fireproof, he exclaimed, "What a pity!"

The Old Pension Office is noted for its spacious interior court, with two rows of colossal columns and lofty arches supporting the central part of the roof, composed largely of glass. In this tiled court, inaugural balls were held for Presidents Cleveland, Harrison, McKinley, Roosevelt, and Taft. A three-foot terra-cotta bas-relief frieze extends around the four sides of the building, portraying marching infantry, cavalry, navy gobs rowing ashore, army supply wagons, and wounded being assisted to the rear.

From 1885 to 1926, the Pension Bureau of the Interior Department had its offices in the building. Upon the merger of the Pension Bureau with the Veterans' Administration, the General Accounting Office occupied the space.

Rand, McNalley and Company's Handy Guide
to Washington and the D. C., 1896, by
Ernest Ingersoll
The Book of Washington
by Cleland C. McDevitt, 1927

ARMY MEDICAL MUSEUM

Provision for a brick and metal fireproof building for the safekeeping of the records, library and museum of the Surgeon General's office of the United States Army was made in an Act of Congress approved March 2, 1885. The Act stipulated that the building should be placed upon the government reservation in the vicinity of the National Museum and the Smithsonian Institution, on a site to be selected by the Secretary of War, the Architect of the Capitol, and the Secretary of the Smithsonian Institution, and should be constructed according to plans and specifications of the Surgeon General of the Army. Direction and superintendence was placed under the Secretary of War for expending the two hundred thousand dollars provided by the Act.

Colonel Thomas Lincoln Casey, Corps of Engineers, was placed in charge of the project. He remained in charge until October 16, 1886, when he was relieved by Lieut. Colonel John M. Wilson, Corps of Engineers, in charge of Public Buildings and Grounds.

Plans and drawings prepared by the architects, Chess and Schultze, provided for a main building, three stories high, with basement and attic, and flanked by two wings. The main structure is approximately fifty-four feet by one hundred twelve feet and the wings are sixty by one hundred thirty-one feet, providing about twenty-three thousand square feet of floor space.

Although the twenty-one black marble mantles originally contemplated were too expensive at forty dollars each, requiring the substitution of slate mantles, other items of expense were more modest. Colonel Casey secured authority from the Secretary of War to hire a horse and buggy at not to exceed twenty-five dollars per month for use on the museum job and to erect a temporary wooden building for use of inspectors at not to exceed the sum of fifty dollars!

After the contract was let, an annex to contain the boiler house, latrines and coal vault was authorized by the Secretary of War at a cost of approximately eight thousand dollars to be paid from the funds contained in the Act for the main building. This annex was completed in the spring of 1887. The main building was finished in

November 1887. Subsequently, Congress appropriated money for a second annex to be used for laboratory and anatomical work, which was completed in May 1888, as well as all work on roads, pavements, and landscaping. Delays due to severe winter weather and slow progress by the contractor prevented an earlier completion which had been contemplated.

When all obligations had been provided for, Colonel Wilson had one hundred dollars thirty cents left from the original two hundred thousand appropriated and secured authority from the Secretary of War to apply this balance for building an ash pit.

National Archives of the United States



Library of Congress

LIBRARY OF CONGRESS

Phenomenal growth of the Library of Congress after its establishment in Washington in 1800, from a catalog collection of less than a thousand volumes and nine maps, to millions of items three quarters of a century later, required more commodious quarters. Housed in the west front of the Capitol building, it had long since outgrown its quarters, and hundreds of thousands of books, musical scores and engravings were stored in boxes in the basement of the Capitol, where they were practically inaccessible to general use.

On April 15, 1886, Congress appropriated five hundred thousand dollars for the acquisition of land east of the Capitol and the construction of a fire-proof building, in the Italian Renaissance style of architecture, under the supervision of a commission established for the purpose.

By Act of October 2, 1888, all work on the construction of the new library was placed in charge of the Chief of Engineers, U.S. Army, and the commission was abolished. Furthermore, the Chief of Engineers was charged with preparing plans for the construction before any further contracts were let.

Proceeding under these statutory requirements, Thos. Lincoln Casey, Chief of Engineers, supervised the work from 1888 to 1895. Following the Italian Renaissance order, this monumental structure is three hundred forty feet by four hundred seventy feet and covers about three and one half acres. The roof is of copper and the dome, one hundred ninety-five feet above the ground, is heavily gilded. This monumental structure provided nearly eight million cubic feet of space and more than eight acres of floor space. A tunnel connects it with the Capitol.

The Library was opened to the use of the public in 1897.

The Book of Washington
by Cleland C. McDevitt, 1927
Rand, McNally and Company's Handy Guide
to Washington and the D. C., 1896, by
Ernest Ingersoll
Manual on the Origin and Development of
Washington by H. Paul Caemmerer, Ph. D., 1939
Washington City and Capital, American Guide
Series, 1937, G.P.O.

GOVERNMENT PRINTING OFFICE

Of the many problems of organization facing the first Congress of the United States, a plan for keeping a record of its proceedings was among the earliest to be considered. Recommendation was made in the initial session, in 1789, that proposals be invited for "printing the laws and other proceedings of Congress." Five years later an appropriation was authorized for "firewood, stationary and printing." Thus was born an activity destined to expand into a printing and binding business caring for a large part of that type of work for the government.

For many years, all the work was done by commercial enterprise. Then, in 1861, an established printing business at North Capitol and H Streets, close by the Capitol, was purchased and the government thereby became its own printer. President Lincoln appointed the first Superintendent of Public Printing.

During the following thirty-odd years, additions and betterments were provided for the preparation, storage and distribution of official documents and publications. At the turn of the century, Congress authorized an additional building to be constructed under the supervision of the Chief of Engineers, U.S. Army. A modern fireproof brick and concrete printing plant was erected at a cost of about two and one half million dollars, under the immediate supervision of Captain John S. Sewell, Corps of Engineers. Construction, which was initiated in 1899 and completed about four years later, was beset with problems common to building operations in succeeding years, such as strikes, scarcity of skilled labor and materials and lack of available freight cars for transportation. Completion of this work provided the first of a group of four buildings to house the Government Printing Office.

Annual Reports

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National Archives of the United States



Reclamation of the Anacostia River and Flats

RECLAMATION OF THE ANACOSTIA RIVER AND FLATS

An Act passed by Congress while in session in the city of New York in January 1790, provided --

"That a district or territory not exceeding ten miles square, to be located, as hereafter directed, on the River Potomac at some place between the mouths of the Eastern Branch and Connogocheque, be, and the same is hereby, accepted for the permanent seat of the Government of the United States."

Because waterways were the natural and available means of transportation before the advent of roads, the Anacostia was esteemed for its deep-water facilities in close proximity to the shore, contrasted with the very limited navigation afforded on the Potomac River frontage.

In a pamphlet published by Tobias Lear, faithful secretary of George Washington, entitled "Observations on the River Potomack and Country Adjacent and the City of Washington," it is stated that the Eastern Branch --

"affords one of the finest harbors imaginable for ships. It is more than a mile wide at its mouth and holds nearly the same width for almost the whole distance to which the city extends upon it, and then narrows gradually to its head, which is about ten miles from its conflux with the Potomack. The channel of this branch lays on the side next the city; it has in all parts of it, as far as the city extends, from twenty to thirty-five feet of water."

This statement as to the depth of water in the stream is borne out by the soundings shown on the Ellicott map of the city, and that prepared by Dermot, around the turn of the eighteenth century.

It is reported that Captain John Smith visited the Anacostia in 1608, upon one of his exploring expeditions from the Jamestown settlement in Virginia. On a map carried by Captain Smith, he gave the waterway an Indian name, "NACOTCHTANK." One Henry Fleet, captured by the Indians, called it "NACOSTINE" - "Great Town for Traders." It is reported that later the Jesuits latinized the name to "ANACOSTIA," as it has been known to this day. Between Bladensburg and the mouth of the river, a line of Indian village sites has been traced. James Barry, who was the first president of the City Council Chamber, owned considerable land on both shores of the river, and his farm, known as Barry Farm, and later Hillsdale, was purchased by Freedmen's Bureau for freed slaves. John Howard Payne, author of "Home Sweet Home," lived near the river. Also. Frederick Douglas, Minister to Haiti.

During the Colonial period, seagoing vessels are reported to have docked at Garrison's Landing, at which point the town of Bladensburg was laid out. A warehouse was also in existence in the town, to which the Colonial laws required that all tobacco raised in the vicinity should be brought to be inspected before its shipment to Europe; and during the Revolutionary period, the MOLLIE and CAPTAIN CONWAY arrived in the river from the West Indies with a cargo, part of which consisted of six thousand pounds of powder, which was unloaded at Bladensburg and delivered to the Revolutionary authorities. Founded in 1750, it was named for Martin Bladen. Here Stephen Decatur was mortally wounded in a duel with James Barron; and here Attorney General William Wirt was born. This was also the scene of Commodore Barney's stand during the War of 1812. Giesborough Point, on which old Giesborough Manor stood, is downstream at the mouth of the river.

The Navy Yard was established on this stream, where the wooden frigates PRESIDENT, CHESAPEAKE, and UNITED STATES were constructed. These together with the NEW YORK, CONSTELLATION, JOHN ADAMS, ADAMS, CONGRESS and BOSTON and the brig HORNET formed quite a fleet. British gun boats sailed up the river to assist in the defeat of the American Militia at the battle of Bladensburg and later burned down the old wooden bridge known as the Naylor Bridge, which spanned the river just above the present Anacostia Bridge.

Early studies were initiated with a view to the construction of a canal from Washington to Baltimore via this route. Nothing materialized with respect to those plans and navigation continued as before with sixty-ton and other small boats carrying cargoes to and from the warehouses and landings at Bladensburg.

When one stops to think of the activity and navigation on the Anacostia over so long a period without any mention of the extensive flats and marshes which had been a source of agitation for many years, it is difficult to realize the changes which have taken place. Whereas the stream had been looked upon with great favor because of its wide and deep channel, it became a source of complaint and annoyance, to say nothing of its positive detrimental effect on the health of the inhabitants living in its vicinity.

The gradual destruction of the utility of the upper portion of the Anacostia River for purposes of navigation and the impairment of the lower reaches resulted from deposits by freshets from the river itself and, as the Anacostia is a tidal estuary of the Potomac, from the deposit of silt from that muddy stream in times of freshet. In the upper portion, the sediment was brought down from a drainage area of approximately one hundred and fifteen square miles. Some of this was sand, staying in the upper reaches and some of it was silt which was carried farther downstream and left in the quiet water below. The formation of flats in the river was probably due, in part, to the extensive clearing of land, thereby permitting the soil to wash away, much the same as occurred in the territory drained by the Potomac River.

For many years, also, sewers on both sides of the Anacostia emptied their contents twenty-four hours a day into its waters, there to be caught in the stagnant pools along the shores, among the reeds and aquatic plants growing so profusely, to decompose along with putrefying vegetable matter, and to render the land bordering the stream undesirable for habitation. These pools formed ideal breeding grounds for the malaria mosquito and other insects.

The subject of the improvement of the Anacostia River had been before Congress for many years, and numerous surveys had been ordered, but the first comprehensive plan for the improvement of the river was submitted to Congress in 1892, as a result of an investigation and survey by Lieut. Col. Peter C. Hains, Corps of Engineers. Although this report recommended dredging from the mouth of the Navy Yard or Anacostia Bridge only, it did consider the need of filling in some of the objectionable marshes bordering the river in that vicinity. A twofold purpose would be served, namely, a convenient dumping ground for dredge spoil and the partial reclamation of the flats. Subsequent to the submission of this report, more insistent demands were made by the East Washington Citizens' Association, presented in the form of a memorial to Congress by Senator McMillan and by others who were interested in that locality. Some government institutions were located near its banks and growing suburban communities in contiguous territory were subject to the malaria breeding atmosphere of the swamps.

Accordingly, Congress directed the Secretary of War to prepare and submit a project for the improvement of the Anacostia River and the "reclamation of its flats from the line of the District of Columbia to the mouth of said river." This was the first definite step toward the amelioration of the conditions existing along the river banks. The McMillan report four years later gave impetus to the plan. Recent legislation for construction of flood control works in the upper reaches of the river has in effect extended the scope of the project. Reclamation work was started in 1912, by Lieut. Col. W. C. Langfitt.

The "intolerable" conditions of the marshes presented a different appeal to lovers of nature. Flora and fauna thrived in a natural habitat for many species of birds and numerous varieties of wild flowers and marsh lilies.

The Kenilworth Aquatic Gardens near the upper end of the park were established by W. B. Shaw as a private enterprise some years before the close of the nineteenth century. The United States purchased the Gardens to form a part of Anacostia Park. Lily ponds are the chief attraction of the Gardens and contain many varieties of rare and beautiful flowers.

Mr. Shaw's daughter, Mrs. L. Helen Fowler, who was always associated with her father in his hobby, carried on after his death and has devoted her mature years to perpetuating in color the vivid likenesses of the lilies.

Anacostia Park is a readily accessible recreational area, being crossed by three highway bridges advantageously located. Public conveyances traverse these highways on regular schedules. In area, the park is larger than either Rock Creek or Potomac Parks and offers to the eastern portion of the city advantages afforded by large parks located to the north, northwest, south, and southwest sections.

Due to the nature of the work and the fact that provisions were made intermittently by Congress for carrying it on, commercial equipment could not be satisfactorily used and the Corps of Engineers performed the work by hiring the labor and furnishing the equipment. A derrick boat and dredge capable of passing under the low bridges spanning the river were used. All superstructures, including the "A" frames of these craft, were constructed so that they could be dismantled and re-assembled. It was also necessary to build a special floating concrete plant for construction of masonry seawalls, conduits, small bridges and locks. Several thousand tons of stone from the dismantled Aqueduct Bridge were hauled by barges and placed in the seawalls. Richness of the deposits from the river bed supported community gardens, yielding amazing crops of vegetables.

Lending interest to the daily routine, objects pumped up from the river bed brought reminiscences of by-gone days. Old coins dating back to the eighteenth century found their way into the dredged material and became the prized possession of the finder. Solid shot, used before the development of explosive shells, were also salvaged from the spoil. One of these cannon balls which had been placed on top of the seawall by the dredge crew proved too tempting for some fellows who rowed over from Buzzards' Point and proceeded to topple it over into the boat. When it hit the boat, it continued through the bottom to the river bed whence it came. Some cannon balls of less weight were used to decorate the tops of stone gate posts.

Over four hundred acres of privately-owned property were acquired through purchase and condemnation for incorporation in the park area, in addition to that reclaimed by dredging and public dumping.

In due course, certain portions of the approximately eleven hundred acres thus obtained were occupied by agencies of the Federal and District governments for playgrounds, military and naval airfields, tree nurseries, Botanical Garden work, and commercial enterprises.

Plans for the future provide for a Memorial Stadium to include parade grounds, athletic field and natatorium for exhibition and competitive diving and swimming. As part of this development, a National Guard Armory has been constructed near the terminus of East Capitol Street.

Interest in this waterway is not limited to its historic background and its esthetic features.

Adjoining the park at its northwest sector is a wooded tract high above the river, reserved as The National Arboretum fathered by the Honorable James Wilson, Secretary of Agriculture, who, in speaking of it, said --

"One in which can be brought together for study all the trees that will grow in Washington, D. C. * * furnishing complete material for the investigation of the Department of Agriculture, and so managed as to be a perennial means of botanical education."

Thirty-two distinct varieties of soils suited to the growth of trees and plants exist in the area, making it a favorable locality for the establishment of a National Arboretum. The mild climatic conditions involving neither the extreme cold of the North nor the extreme heat of the South are a great aid.

Constant level lakes, bordering the river on the west, will afford recreation to those visiting the area.

To make it possible for the development of multi-varied interests, miles of seawalls have been constructed by the Washington District on both banks of the river to hold the spoil dredged from the channel, thereby improving it for navigation purposes.

Records of the D. C. Chapter, D.A.R.

Annual Reports for 1892 and 1949

Chief of Engineers

National Capital Parks Files

Washington the National Capital

Senate Doc. 332, 71st Cong., 3d Sess.

LINCOLN MEMORIAL

The Lincoln Memorial Commission was established by Act of Congress on February 9, 1911, with President William H. Taft, as Chairman, to "procure and determine upon a location, plan and design for a monument or memorial in the city of Washington, District of Columbia, to the memory of Abraham Lincoln * * ."

After approval by Congress of the location and design, the work was to be prosecuted to completion under the "direction of the said commission and the supervision of the Secretary of War * * ."

Pursuant to this mandate of Congress, and upon advice of the Commission of Fine Arts, a location at the west end of the Mall, envisioned by the Park Commission in 1901, was selected for the memorial structure. A design by Henry Bacon was approved by the Lincoln Memorial Commission. President Taft signed the joint resolution of Congress approving the recommendations of the Commission on February 1, 1913.

Work was initiated on February 12, 1914, the cornerstone was laid on February 12, 1915, and the Memorial was dedicated on May 30, 1922. Throughout the period of operations, the officer of the Corps of Engineers in charge of the Office of Public Buildings and Grounds supervised the work as Executive and Disbursing Officer of the Commission. Four of these officers, Colonel Spencer Cosby, Colonel Wm. W. Harts, Colonel Clarence S. Ridley, and Colonel Clarence O. Sherrill, served in that capacity.

The site selected for the Memorial is on ground which was reclaimed from the Potomac by hydraulic fill between 1882 and 1908, by the Washington Engineer District. Borings showed that bed rock lay at an elevation of approximately minus thirty-seven feet, overlaid with rotten rock, sand, clay, gravel, and sandy soil.

The subfoundation consists of one hundred twenty-two concrete piers formed in steel cylinders driven to bed rock. These cylinders vary in length from forty-nine to sixty-five feet, and in diameter from three feet six inches to four feet two inches. They are

heavily reinforced with square twisted steel rods. The upper foundation consists of one hundred six rectangular concrete piers, varying in size from three feet by six feet to seven feet four inches by eleven feet, forty-five feet high. Foundations of the terrace surrounding the Memorial and of the approaches were constructed with spread footings. Settlement of this portion of the work necessitated underpinning, which was accomplished after completion of the Memorial.

The Memorial consists of a building of pure Grecian architecture, similar in design to the Pantheon. It is constructed of Colorado Yule marble, from quarries located in the Rocky Mountains about three hundred miles west of Denver. Some of the stones are of unusual size, weighing as much as twenty-three tons each. The marble was selected for its superior qualities of color, texture and uniformity. In the Memorial there are about two hundred and eight thousand cubic feet of this marble.

The Memorial building is completely surrounded by a terrace wall and access to the building is by means of monumental approaches and stairways.

There are thirty-six columns in the colonnade surrounding the building proper, representing the States in the Union at the time of Lincoln's death. On the parapet above the columns are forty-eight festoons in bas-relief, symbolizing the present States of the Union.

The interior of the building is extremely simple, containing in the center the impressive statue of Lincoln, and on the right and left hand walls are the two principal Lincoln addresses, namely, his Second Inaugural Address and his address at Gettysburg.

The superstructure is two hundred and one feet ten inches long by one hundred thirty-two feet wide at the outside of the bottom step of the stylobate course.

The height of the building from the top of the foundations to the top of the attic is seventy-nine feet ten inches.

The interior walls, columns and ceiling lintels are of Indiana limestone. The interior floor and the wall base are of Tennessee marble. The ceiling consists of

bronze beams with rectangular openings containing slabs about one inch thick of marble from Alabama. These admit the light from overhead, through the glass skylight which covers the building.

The statue, nineteen feet high, is a seated figure upon an oblong pedestal about ten feet high, seventeen feet from front to back, by sixteen feet wide.

Total cost of the Memorial was slightly over three million dollars.

Two pools were subsequently provided to the east of the Memorial building on the axis of the Memorial and the Washington Monument. Three feet in depth, one is two thousand feet by one hundred sixty feet which forms the Reflecting Pool and the other is three hundred feet by one hundred sixty feet, known as the Rainbow Pool, because of the reflected light from the two hundred water jets. The Reflecting Pool affords a skating area in winter when sufficiently frozen. In warm weather it is used for model-yacht races and fly-casting contests.

National Archives of the United States
Annual Reports for 1912 - 1922
Chief of Engineers

GHOST SHIPS

The Washington Engineer District inherited a fifteen-year problem in caring for one of the many after-maths of World War I. Phantom remains of a once proud fleet of merchant vessels became the wards of the office. Two hundred eighteen of these naked hulks swung idly at anchor in the Potomac River until consigned to a graveyard at Mallows Bay, Maryland. Gaunt, wooden hulls, with no human tenants, riding high on the waters of the anchorage area at Widewater, Virginia, awaited their turn to be called by name for final disposition.

Hundreds of these ten-thousand ton war-time freighters, which had cost the government upwards of two hundred million dollars, had become a burden to the U. S. Shipping Board, custodian of the vessels at the end of the war. No economical or useful purpose could be found for them. Hundreds were placed at anchorage in the James River, near Claremont, Virginia, ultimately to become a menace to navigation and other interests.

About 1923, west coast banking interests formed the Western Marine and Salvage Company which purchased the major portion of the fleet at a fraction of its original cost. Request was then made by the company for permission to tow the boats to an anchorage ground in the Potomac River, from whence they could be brought to the plant of the Virginia Shipbuilding Corporation, at Alexandria, for dismantling. An anchorage area was established by the Secretary of War at Widewater, Virginia, about thirty-three miles below Washington and the company was required to post bonds of seven thousand dollars for each boat placed therein, to protect the interests of the United States. All removable machinery and equipment was salvaged at the shipbuilding plant in Alexandria and the empty hulls were then towed into shallow water at Mallows Bay, Maryland, and burned, to recover brass, copper and iron used in the hulls. The spectacular burning was referred to as the "two hundred million dollar bonfire." Oblique and mosaic photographs were taken by the Air Corps.

During the five years following completion of the work by the salvage company, a new interest developed

in the remains of these hulls lying in the mud. Beach combers found lucrative pickings in a "scrap metal rush" of the late thirties. Idle fishermen and farmers worked the scrap metal "veins" for a livelihood. Some of the salvaged metal was loaded on barges and hauled to Georgetown for transportation to other points by box car. Trucks from Baltimore bought metal at the graveyard and hauled it back for resale at a profit. All in all, it became a thriving industry. One worker, who had been operating for about two years, was equipped with a crane, a water pump, tug boat, two barges, acetylene torch, grappling hooks and other wrecking tools.

Operations of these prospectors for buried treasure developed increased hazards of debris floating into navigable waters. To protect navigation interests, the District Engineer pumped mud into the outer ring of hulls to insure the river against further encroachment by the "ghosts from the graveyard."

Office Files

BATTLEFIELDS

As mute reminders of war, monuments and markers stand vigil over numerous battlefields in Washington, D. C. and vicinity.

In 1926, Congress provided for "properly commemorating * * battlefields or other adjacent points of historic and military interest." Under the adopted plan, battlefields in the continental United States from the time of the Revolutionary War were classified according to political, military and historic importance and interest, to determine the type of memorial to be established, such as a military park, a national monument, or merely markers or tablets.

Several of these studies were assigned to the Washington District office.

One embraced Yorktown, Virginia, where Lord Cornwallis surrendered to the allied American and French armies under the command of General Washington. Suitable monuments commemorate the historic Battle of Yorktown and the spot where Cornwallis surrendered. Markers and tablets are placed along battle lines and indicate location of redoubts.

With a view to marking certain of the sites, Congress authorized the appointment of a commission in 1924, to make studies and surveys in the vicinity of Fredericksburg and Spotsylvania Court House, Virginia. Major General John L. Clem, the Drummer Boy of Shiloh, was Chairman, representing the Union side. Judge John T. Goolrick represented the Confederate States, and Major J. A. O'Conner, District Engineer, acted on behalf of the War Department. Their immediate task was to report on the feasibility of marking and preserving the battlefields of Fredericksburg, Spotsylvania, Wilderness, and Chancellorsville, including Salem Church.

Historical features included trenches, earthworks, and gun emplacements, the Sunken Road and parts of the Stone Wall at the foot of Marye's Heights at Fredericksburg and the area between the old Richmond Road and the river north of Hamilton's Crossing.

Some of the notable monuments are:

To Pelham's Battery - small granite block at roadside near Hamilton's Crossing.

Cobb Monument - small granite block marking spot where General Cobb was killed on Sunken Road.

Pyramidal monument of stone blocks erected by Richmond, Fredericksburg, and Potomac Railroad near Hamilton's Crossing which marks the point where General Meade made his drive into the woods.

The National Cemetery on Marye's Heights above the Sunken Road.

Two monuments near Chancellorsville to Stonewall Jackson. One is a natural boulder and one is a marble monument erected by the state of Virginia. A small stone also marks the spot on the old Lacy plantation known as Elwood where the left arm of Jackson is buried.

Sedgwick Monument at Bloody Angle.

Ohio Monument at Bloody Angle.

Monument at Bloody Angle to 15th Regiment, New Jersey Volunteers.

Monument at Bloody Angle to 49th New York Infantry.

Pointed wooden post marking the position of the tree cut down by bullets at Bloody Angle. The upper end of the tree is said to be at the Smithsonian Institution in Washington; the butt has rotted away.

Wooden slab at Bloody Angle, painted white, lettered:

"Here Maj. Gen. Johnson and Brig. Gen. Stewart were captured about sun up the morning of May 12, 1862. Lt. Albert Aylor, Lt. Hoffman, Co. 'L', 10th Virginia Infantry."

Monument to 23rd Regiment, New Jersey Volunteers at Salem Church.

Stone near Spotsylvania Court House marking site of Lee's Headquarters, in front of the Court House.

Stone at Wilderness with inscription:

"'Lee to rear' cried the Texans."

In Fredericksburg, a monument as a memorial to General Hugh Mercer.

There are numerous other historical landmarks in the area intimately connected with Colonial, Revolutionary, and Civil War periods.

In 1927, Congress established the Fredericksburg and Spotsylvania County National Military Park, embracing portions of the four battlefields, Fredericksburg, Chancellorsville, the Wilderness, and Spotsylvania Court House.

Time has effected little change in the approximately four square miles of battleground. Miles of trench remain and gun pits are well preserved and may be readily seen along with the historic sites that have been marked.

Coming north to Fairfax and Prince William Counties, the sites of the First Battle of Bull Run and the Second Manassas or Groveton Battle are marked by numerous imposing monuments to the Union and Confederate forces engaged in these struggles. Some little distance to the north of Bull Run Battlefield, fine cut stone monuments stand at Chantilly or Ox Hill marking the spots where Generals Stevens and Kearny fell. An unusual type of monument in pyramidal form rests on the historic stone bridge over Bull Run. In Loudoun County, near Leesburg, on the Potomac River, a military cemetery and stone monuments commemorate the Battle of Ball's Bluff, which preceded the First Battle of Bull Run.

Proceeding up the valley of Virginia, Opequon or Winchester, in Frederick County, is the site of another Civil War battlefield. The battlefield itself is about

one mile from Winchester and the opposing Armies led by
Generals Sheridan and Early clashed in a one day battle.
The Star Fort is located here.

In Washington, D. C., the battlefield at Fort
Stevens on Georgia Avenue is best remembered as the
place where President Lincoln stood while the Fort was
under fire. Small monuments and markers indicate the
points of most interest.

Guide to Fredericksburg by Mrs. Vivian
Minor Fleming, Regent of Washington,
Lewis Chapter, D.A.R.
National Park Service Files
Office Files

MT. VERNON MEMORIAL HIGHWAY

In 1928, Congress authorized the commission created to arrange for the bicentennial celebration of the birth of George Washington to construct a suitable memorial highway connecting Mt. Vernon, the home and burial place of George Washington, with the south end of the Arlington Memorial Bridge. Further, the Secretary of Agriculture was authorized to cooperate with the commission in carrying out the plans and to assume jurisdiction and control of the highway when completed. Subsequent amendments to the foregoing Act authorized conversion of the second pier from the south end of the Highway Bridge into an abutment and to remove the two south spans of the bridge to make space for the memorial highway. The Secretary of Agriculture was also authorized to arrange for the erection of a suitable concession or refreshment building at the entrance to the Mt. Vernon estate, subject to the approval of the Fine Arts Commission.

Many years prior to the enactment of the above legislation, Congress had authorized and directed the Secretary of War to detail "one or more engineer officers of the Army" to make the necessary surveys for a "national road from a point in Alexandria County, Virginia, at or near the Virginia end of the Aqueduct Bridge, and thence through the counties of Alexandria and Fairfax, in said State to Mount Vernon * *." Colonel Peter C. Hains, District Engineer, received the assignment for that work. An interesting soliloquy is noted in a study of the report made by Colonel Hains. He mused, "What is its object? It is not for commerce. It has no military value. It does not partake of the nature of an ordinary work of internal improvement. It is true, it would be of great value to the section of country through which it would pass, but to the nation it has practically no pecuniary value. What, then, is the object? It is to commemorate the virtues of the grandest character in American history. It is to satisfy the cravings of a patriotic sentiment that fills the hearts of the American people to honor the name of Washington." In the McMillan report of 1902, on the improvement of the park system of the District of Columbia, the plan of Colonel Hains was indorsed.

Thus, we see the birth of a vision that materialized over thirty years later. Colonel Hains also thought that it would be far more in keeping with its character as a "national road" to have it start from some point in the vicinity of the Arlington estate, at the terminus of a handsome bridge spanning the Potomac River. How prophetic!

Out of the numerous routes considered for such a memorial, the one finally selected provides a scenic drive along the shores of the Potomac River, except for a short distance through the city of Alexandria. Four estuaries of the Potomac are crossed on bridges at Boundary Channel, Four Mile Creek, Hunting Creek, and Little Hunting Creek. Fills were constructed across nearly three miles of open water. Starting near the foot of the Lee Mansion and Arlington Cemetery, the road winds in view of such historic places as Abingdon, the home of John Parke Custis; Christ Church, where the Washington pew may still be seen; the old quarters of the volunteer fire department to which Washington belonged; Gadsby's Inn, where Washington recruited the first company of provincial troops; the Carlyle House, where Washington received his appointment as an officer in the British Army on General Braddock's staff; the George Washington National Masonic Memorial; the Confederate Monument; old Fort Hunt; and Collingwood, formerly "River Farm" owned by General Washington. Although a considerable portion of the road is on made land, much of the remainder is on land once owned by the Washington family. This highway not only serves as a memorial to Washington but affords an additional highway from the city of Washington to points south via a connecting road at Woodlawn to the Richmond Highway. When the George Washington Memorial Parkway is completed, it will afford a continuous route from Mt. Vernon, facing the placid water of the Potomac, to Great Falls, along the rugged banks of the upper river, through miles of picturesque scenery.

After inviting bids for the hydraulic fills required over the several waterways in the line of the highway, the Secretary of Agriculture requested the Secretary of War to have the Corps of Engineers perform the work, as the quotations received were considered excessive. Assignment of the work was made to Major Brehon B. Somervell, District Engineer, who started the job on

November 4, 1929. It was completed under the direction of Major J. D. Arthur, District Engineer, in 1931, in time for the bicentennial celebration of the birth of George Washington, at a total saving to the government of over one million dollars. Construction of the fills across long soft-bottom watercourses was considered an unprecedented undertaking in roadway building, by reason of the large quantity of select heavy-bodied material, of which nearly three and one half million yards were pumped long distances to high lifts. The eighteen-inch hydraulic dredge TALCOTT and the twenty-inch hydraulic dredge MELATKA, with booster pump and attendant plant, worked three shifts to finish the job on time. All fills, composed of sand and gravel, fully justified the methods used. Some fifteen years later, portions of the roadway appeared to have settled below grade in the neighborhood of the Potomac Railroad yards between Washington and Alexandria but upon checking the original survey monuments, it was ascertained that actually there had been no settlement. Fill placed by the railroad in expanding its yards had caused the fill to rise in some places, creating the illusion of settlement.

Custody and control of the highway is now under the Office of National Capital Parks.

Manual on the Origin and Development
of Washington by H. Paul Caemmerer, Ph. D., 1939
Washington City and Capital,
American Guide Series, 1937, G.P.O.
House Ex. Doc. 106, 51st Cong., 1st Sess.
Office Files

WASHINGTON CHANNEL WATER FRONT POTOMAC RIVER

This area borders a long neglected section of the city on the Potomac River and extends a distance of approximately two miles from the Pennsylvania Railroad Bridge to the Army War College grounds, now Fort Lesley J. McNair. Accounts of the early settlement of Washington state that George Washington acquired some land in the vicinity of Greenleaf Point, known as the "Carrollsbury Section," in 1793. At that time, this part of the city was believed to be the future maritime port of Washington. From P Street, the northern boundary of Fort McNair, to E Street, the Washington end of the Pennsylvania Railroad Bridge, the water front was occupied by dilapidated wharves, bulkheads, and undeveloped mud banks.

However, old Washingtonians enjoyed certain pleasures in this forsaken section. On a sultry evening in summer, a street car ticket costing but little more than four cents would carry one from the boundary line at Florida Avenue, Northwest, on a thrilling ride behind a team of horses, urged along by a driver with a whip, to the old carbarn at the foot of Seventh Street, Southwest. Arriving at the end of the line, watermelons in season could be purchased for a few cents from the masters of the oyster boats hauling them to Washington from the lower river points. Or, one might thread his way out through the mud flats to many rocks scattered along the water's edge and cast a line over for sunfish, hardhead or croaker, with an occasional bass, but, more often, a catfish or eel. Then there was the sunset over the channel and the tops of the trees on Potomac Park to the hills on the Virginia shore, while the river steamers lazily left their docks for moonlight rides or trips to Baltimore and Norfolk. In the colder weather of fall and winter, no better salt-water oysters could be had at any price than those the skipper would shovel from the hold of his boat for one to sample. A bushel for sixty cents would shuck a gallon.

Such was the picture of this stretch of the river bank until fuller development of the surrounding area and the need for more modern facilities prompted Congress to call for a comprehensive study of this phase of river and harbor improvement. Pursuant to the requests of

local business and civic organizations for action to replace an unsightly and rapidly deteriorating water front with modern and useful facilities and based on reports and recommendations of the Washington District Engineer, a project was adopted for an orderly and suitable modernization to care for some governmental activities such as the police and fire departments; wharves and piers for commercial transportation and marinas for the yachting fraternity -- structures to be of the conventionalized Colonial type. The land is all government owned and considerable progress has been made on the reconstruction program. Two yacht basins, which harbor two hundred recreational craft, a commercial pier for general service, and an excursion boat pier have been completed. The project is about twenty-five per cent complete. Several millions of dollars will eventually be expended in the improvements to provide for upwards of three hundred and fifty boats of all types, facilities for maintenance, and a club house. The Washington Channel is a favorable location, free from wave action, moving ice, damaging floods or other hazards. It is readily accessible to residential areas and normal city conveniences. A boulevard of one hundred and sixty feet, paralleling the river is projected to connect with Anacostia Park.

The formerly placid atmosphere of this section of the water front has succumbed to modern living and offers tempting facilities for the seafood gourmet and boating adherents.

Records of the D.C. Chapter, D.A.R.
Washington City and Capital

American Guide Series, 1937, G.P.O.
Washington the National Capital

Senate Document 332, 71st Cong., 3d Sess.
House Doc. 13, 73d Cong., 1st Sess.
Office Files



Washington National Airport

WASHINGTON NATIONAL AIRPORT

On a memorable day in January 1793, the first balloon ascension ever made on the Western Hemisphere took place at Philadelphia. President Washington was there to witness the inflation and personally issued to the intrepid air pioneer a passport in which he urged "all to whom these presents shall come" to aid the aeronaut Blanchard "with that humanity and good will which may render honor to their country, and justice to an individual so distinguished by his efforts to establish and advance an art, in order to make it useful to mankind in general." In marked contrast is the scene of the national airport provided for the Capital selected by George Washington as the seat of government - an airport costing over ten millions of dollars. Situated on the Potomac River, it is but a ten-minute drive to the heart of Washington. To the east, on the Maryland side, lie the Anacostia Naval Air Station and Bolling Air Force Base. To the west, on slight eminences overlooking the city of Washington, lie Arlington National Cemetery and the historic Lee Mansion. To the south, a few miles down the river, is the historic home of George Washington at Mt. Vernon. This airport is appropriately called "National" - paid for by general taxes of all the people and built by a multitude of workers from all parts of the country.

For a considerable time prior to the selection of Gravelly Point in the Potomac River, investigations had been made by the War Department of a site for a Washington Air Junction. Discussions in Congress, pressure of real estate interests, and diverse views of aeronautical students and engineers contributed to the lack of any agreement on the most desirable site for a national airport. The protracted and often bitter disputes continued into the late thirties, when President Franklin D. Roosevelt laid the whole problem in the lap of the newly created Civil Aeronautics Authority. Based upon a recommendation by the Air Safety Board to the Civil Aeronautics Authority, the President approved Gravelly Point for building the airport by a brief "OK FDR". Proximity to Washington and availability of site, involving purchase of but a small strip of land, appear to have been the deciding factors in selecting the site. The President's interest extended so far as

to examine a bucketful of the material that would be dredged for the airfield.

On a cold, rainy day in November of 1938, President Roosevelt motored to the site and personally gave the signal for starting dredging operations. Several members of the staff of the Washington District were present while the President examined the outline of the plans and indicated his approval. A small derrick boat located off shore dropped the cables and hoisted the first bucket load of materials to inaugurate the undertaking.

An Engineering Commission was set up to assist the Civil Aeronautics Authority in directing the project. Colonel R. S. Thomas, District Engineer, represented the Corps of Engineers and was in direct charge of the construction work. Among the active participating agencies were the Public Buildings Administration, the Public Works Administration, the Civil Aeronautics Authority, the Public Roads Administration and the Works Projects Administration. Money was provided from sundry funds controlled by the President and he told Colonel Thomas on more than one occasion that he "was scraping the bottom of the barrel" to finance the project to completion.

To dredge and place the twenty-odd million cubic yards of material needed for the runways and intervening areas of over seven hundred acres, required the services of three of the largest hydraulic dredges in the world - the PENNSYLVANIA, the GULF STREAM, and the LAKE ELLENDALE, in addition to the U.S. Dredge TALCOTT and minor plant of the Washington District. The dredge GULF STREAM was subsequently assigned to work in the Pacific Ocean area and was lost. This stupendous job, involving hydraulic fill, grading, landscaping, moving a section of the Mt. Vernon Memorial Highway to a new location, paving and installing utilities up to the connection with the public buildings, required the services of over six thousand employees at one time to meet the deadlines set by the President. Even as the Corps of Engineers has devoted so much of its efforts through the years to develop harbors for ships of the sea and to provide channels and waterways to safeguard and facilitate transportation by water, so it had on this occasion a large and important part in providing a harbor for ships of the air.

To convert a swamp into a firm level plain, high enough to be safe from floods, required perserverance, skill and ingenuity throughout twenty-four hours a day. As work progressed, new requirements were met. The upland area was graded to permit the construction of roads and buildings. Roads, runways and taxiways were paved. Adequate drainage was provided for the whole installation. About a thousand test borings and probings were made and the samples analyzed. Turn-over of labor was a big problem. Much of it comprised "floaters" who worked long enough to get a few dollars and then walk off the job, with a pair of government boots, a shovel or some other implement and migrate to another climate. Sometimes a man didn't even collect what was due him but simply disappeared. They also disappeared in other ways. A careless step and fall overboard in the darkness of the night left no trace until subsequently the remains of arms, legs and other portions of the anatomy were discharged on the fill, the body having been drawn into the dredge line and ground up in the cutterhead. Tools, equipment, and markers became buried and lost as the mountains of gravel settled and slid into the ooze, which pushed up outside of the discharge line from the dredges. Excavated and dredged material occasionally contained old coins and cannon balls belonging to another era.

Air reconnaissance was used in inspecting the work and layout of the field. For this purpose a Good-year blimp circled overhead and took pictures, while affording the engineers an opportunity for visual inspection.

Rigorous requirements on a project of this type are met in many ways, one of which was to keep a pot of hot coffee handy around the clock. The master of one of the dredges consumed fifteen to twenty large cups a day. Moreover, that coffee had to be a special mixture to which the men were accustomed. Standard local products were taboo.

Contemplation of the engineering work involved on this project may be tempered if one is aware of a somewhat similar deed accomplished centuries ago. Note what the British Ambassador, Lord Lothian, related when he presented a replica of the High Myddelton Cup to the American Society of Civil Engineers on behalf of the British Institute of Engineers. In describing the

accomplishments of an early English engineer, who was knighted by King James in 1622, he related that, in addition to bringing to the city of London a new fresh water supply -

"For gaining a very great and spacious quantity of land in Brading Haven in the Isle of Wight, out of the bowells of the sea and with bankes and dykes and most strange defensible and chargeable mountains, fortifying the same against the violence and fury of the waves."

These quaint English phrases remind us of history's inclination to repeat itself.

On the afternoon of September 28, 1940, the President of the United States, Franklin D. Roosevelt, laid the cornerstone of the Administration Building, thereby dedicating the Capital's great airport. It was a bright, warm, sunshiny day and preceding the President's address, over four hundred Army and Navy planes circled overhead and then vanished over the horizon.

The airport was opened to commercial use at 12:01 a.m. on June 16, 1941.

Office Files

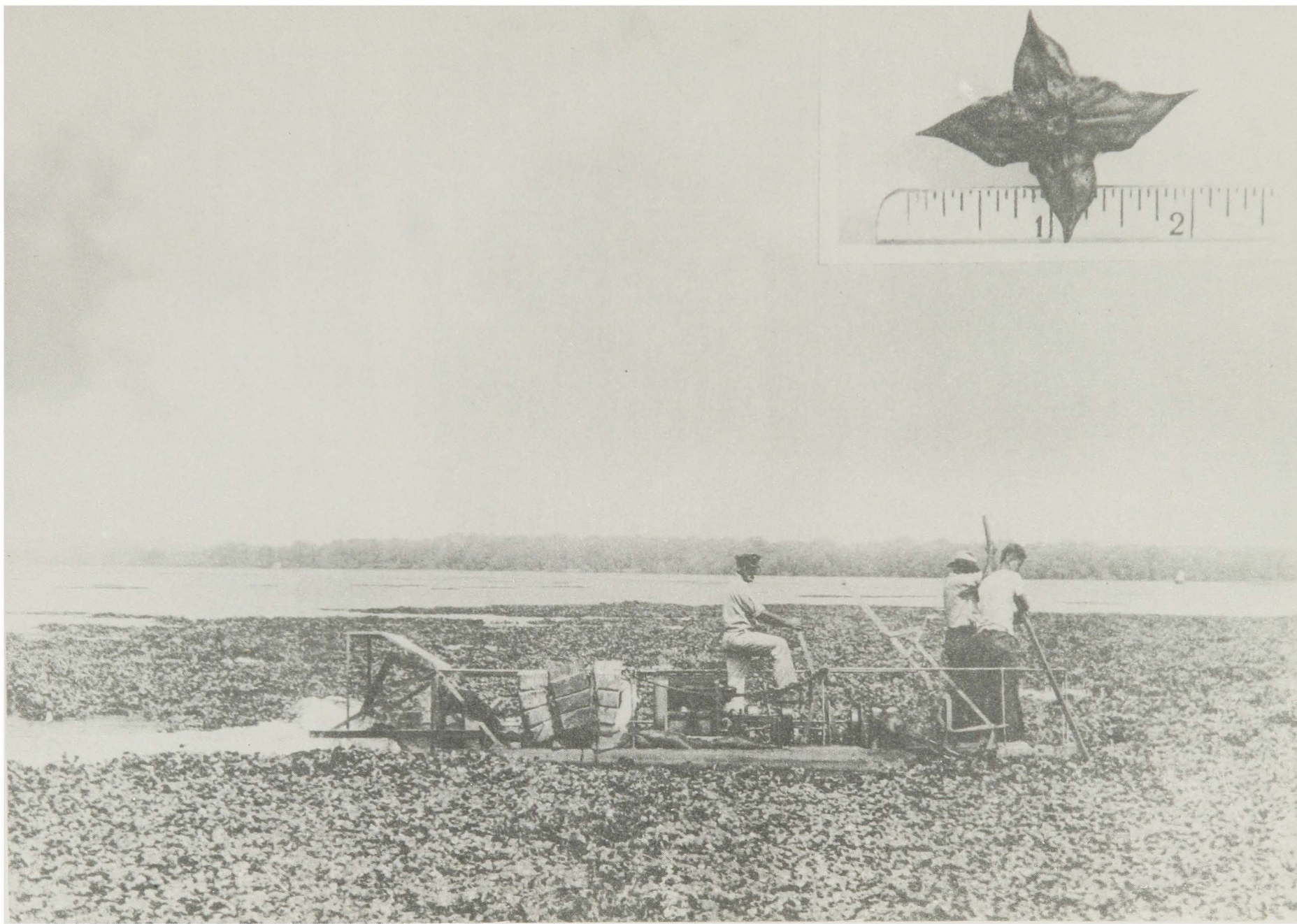
BERTHING HISTORIC SHIPS

About mid-year of 1939, Congress had under consideration the construction of new buildings for the Navy Department in the District of Columbia. The proposal indicated a location west of the Naval Hospital grounds contiguous to the Potomac River. Among other things, provision was to be made for a museum and for the berthing of historic vessels in the immediate vicinity. Such well-known ships included the U.S.S. CONSTELLATION, the oldest frigate in the Navy; the HARTFORD; the OLYMPIA, Admiral Dewey's flagship at the Battle of Manila Bay during the Spanish-American War; and a typical World War destroyer.

Study of the problem was assigned to Colonel R. S. Thomas, District Engineer. Although the idea appeared very laudable in the preservation of historic relics associated with our naval achievements, consideration of the subject developed certain deterrents to the scheme. Danger from floods, ice and drift in the Potomac River, esthetic considerations, traffic requirements for those visiting the site and the expense involved, all suggested that a site on the Anacostia River above the Navy Yard would offer a more attractive solution.

After rendition of a report to Congress, no further action was taken.

Office Files



Modified Hockney Cutter

WATER CHESTNUTS

The water chestnut is not indigenous to North America. It is thought to have been introduced from Eurasia about 1884, and was first noticed in the United States in Saunders Lake, near Scotia, in New York State. Two years later, it was described as growing luxuriantly. Other localities on the Eastern seaboard subsequently reported growths. Infestation of the Potomac River was first noted about 1919, and in the ensuing twenty years assumed alarming proportions, to the detriment of navigation, fish and wild life, bathing in the river, to say nothing of furnishing breeding grounds for the malaria carrying mosquito. Thousands of acres of the shiny green leaves lying on the surface of the water, stretched from the head of Washington Harbor to Maryland Point, about forty-eight miles downstream. This southern limit of growth was due to the fact that, as a fresh-water plant, the water chestnut could not thrive in the salty waters of the river below Maryland Point.

Information from local Chinese residents indicates that the plant introduced on the Potomac River is not the same as that used in some Chinese foods. Regardless of whether this plant may be a blessing in its native habitat, it has been a nuisance in this country. No plan for its use here has been perfected, although some experiments have been made to convert the stems to substitutes for sisal. Water chestnut plants grow from the stream bed in water ranging from six inches to over fifteen feet in depth. They germinate each spring from seed produced at the water surface during the preceding season. The seeds are encased in hard shells, of hickory nut size, which have four sharp spines and weigh about six grams.

Initial steps to remove the growth were taken by Colonel R. S. Thomas, District Engineer, in 1939. Because of the alarming spread of the plants in the Potomac River, a program of control presented by the United States Biological Survey, the Surgeon General of the Army, the Isaac Walton League, and representatives of the boating interests led to authorization by Congress of a study to devise ways and means of eradication.

Attacking this pest with poison proved risky and costly. Spreading kerosene and oil on the beds and igniting was dangerous and ineffective, as was burning by torches and flame throwers, since the plants are almost ninety-seven per cent water. Destruction by inoculation was considered, also prevention of pollination and covering with canvas, but these and similar methods were too costly and did not reach the heart of the plant for permanent destruction.

The methods just mentioned comprised the operations for the first year or so in removing water chestnuts. It was then decided that the best method would be to cut and remove the growth. Initial attempts made by mechanical means involved a donkey engine and cable drum. The machine was placed as close to the water's edge as practicable, the cable taken out into the water and drawn around a group of plants pulling them into shallow water. These means proved inefficient.

Another device embodied a rack arrangement on the front of a boat propelled by a nine-horsepower outboard motor. The scheme worked very well on small patches of the chestnut growth, but was inefficient on large patches because a boat with greater horsepower could not manoeuvre in shallow water.

It was then decided to try underwater weed cutters which had been used in other parts of the country for removal of water hyacinths and other obnoxious growths. Different types of machines were used:

a. V-cutter - This was a type which had been used by the Biological Survey in experimental work. It was not entirely satisfactory for the removal of the chestnut growth.

b. Hockney Underwater Weed Cutter - One of these was purchased but was found to be too light for effective operation throughout the season of growth. The machine consisted of a small steel-decked punt-type boat on which were mounted a motor, a paddle-propelling device, and three cutting bars similar to those used on ordinary hay mowing machines.

c. Portable Underwater Cutter - This was a portable weed cutter fabricated in the Washington District engineer shops. It consisted of two standard

mowing machine cutter bars mounted on a pipe outrigger frame powered by a half-horsepower gasoline engine. The results obtained from this machine were similar to those by the Hockney weed cutter.

d. Jacksonville Hyacinth Destruction Plant - This was a rotary cutter which had been used as an experimental machine by the Jacksonville, Florida District. It consisted of a bank of twelve-inch circular saws with one-inch teeth similar to those used in a cotton gin. It was mounted on an angle iron outrigger frame in front of a standard V-bottom type boat. It did not prove successful in the heavy water chestnut growth encountered.

e. Modified Jacksonville Cutter - This was a machine constructed by placing a trough four feet wide in front of a bank of saws, spacing the saws three-eighths of an inch apart. A cutter bar was mounted on the front edge of the trough which operated about eight inches below the surface of the water. This machine was also found to be unsatisfactory.

f. Modified Hockney Cutter - Consideration then returned to the Hockney type of sickle bar cutter and a much heavier type was developed at the Engineer reservation which utilized greater power, enclosed gearing, redesigned propulsion equipment, and sickle blades twelve feet in length. Six of these modified machines, locally called "jitterbugs," were built in the Washington District shops and five were constructed under contract. With these machines, which travelled at the rate of about two miles per hour in open water, about one acre per hour of solid growth could be cut. About twenty thousand acres of solid growth was disposed of by means of this equipment as well as a much greater area of scattered growth.

Although the use of chemicals was deemed impracticable for eradication of the large areas in the open waters, it was found very effective in destroying the plants which had gained a foothold on the abandoned hulls of World War I wooden ships in Mallows Bay, Maryland, inaccessible to mechanical cutters. These ships had been burned to the water's edge and lay in six to eight feet of water. By use of the chemical 2-4-D-40, nearly all of the plants were destroyed and

the few remaining ones were removed by hand. Had this chemical been available when the larger project in open waters was prosecuted, the mechanical cutters would have been unnecessary.

The job performed by the Washington District office in clearing the Potomac River and its tributaries of the water chestnut was commended and appreciated by interested parties. However, one dissenting opinion was received from a resident who had a farm in the Belmont Bay, Virginia, area:

"This is to inform you that in a life time on the Potomac River and its tributaries, I have never seen a finer job of spreading the water chestnut over a complete area, such as your crew did at that time * * .

"We had one small patch up at the Hasilep farm, and your men and equipment managed to spread this over the entire bay, so that it now looks as though it was purposely planted by hand.

* *

"It is my considered opinion that the man in charge of this work, knowing that the chestnut cut prior to June 15th will not grow and reseed itself, purposely delays these cuttings until the time has arrived when they will reseed themselves in order to perpetuate his job."

House Doc. 113, 81st Cong., 1st Sess.
Office Files

BOLLING AIR FORCE BASE, WASHINGTON, D. C.

Bolling Air Force Base is located on Bolling Field, named for Colonel Reynal C. Bolling who was killed in World War I. It occupies an area of over six hundred acres adjacent to Anacostia Park and across the Anacostia River from Fort McNair and Hains Point. Skeletons unearthed during construction indicate that the land was once the site of an Indian settlement. During the Civil War, a portion of the area was used as a remount station known as Giesboro Depot. Following World War I, the United States purchased the property for use as an air base.

One year before the attack on Pearl Harbor, military construction at this base was transferred from the Quartermaster Corps to the Washington District Engineer, Colonel W. J. Barden. Work was performed by contract and by purchase and hire. Both mobilization and permanent type buildings were constructed. A service club for enlisted men; a central auditorium for moving pictures; a one thousand-man mess; photo laboratory; boiler plant; central heating plant and steam distribution system; plane fueling system; electrical distribution system; extensive alterations to runways and taxiways; a broadcasting studio for the Air Force Band; hangars; utilities; roads and a large intercepting drainage sewer were among the items of work performed by the Washington Engineer District at a cost of about ten million dollars through 1944. Since that time, family housing, a swimming pool, and tennis courts have been built.

A military highway joins Bolling Air Force Base with Andrews Air Force Base, about eight miles distant. This highway was designed and constructed by the Public Roads Administration, under approval and supervision of the Washington Engineer District. For about two years after its completion, this office was responsible for guarding and patrolling the road, under an arrangement with the National Park Service. By Act of August 17, 1949, Congress transferred jurisdiction over the road to the National Park Service.

Office Files



The Pentagon

THE PENTAGON

With the coming of World War II, a critical shortage of office space in Washington rapidly developed. Several aspects of the problem as it affected the Army entered into the final solution. To concentrate the major activities of the Army, scattered in many places, under one roof was considered necessary for many reasons. Availability and cost of land, transportation and parking, accessibility to the large segment of the population settling in Arlington County, Virginia, -- all these factors and more led President Roosevelt to approve recommendations of Lieut. General Brehon B. Somervell, Head of the Construction Division of the Quartermaster General, to locate a new office building in Arlington County, Virginia. Work was inaugurated on the project in September 1941, in accordance with an appropriation of thirty-five million dollars granted by Congress in the Act of August 25, 1941, for constructing a building "for the use of the War Department on Government-owned land comprising the site formerly occupied by the Department of Agriculture Experimental Farm and land adjacent thereto in Arlington County, Virginia * * ." The ultimate cost of the building was over sixty-five million dollars.

This project was initiated under the direction of the Quartermaster Corps, with Lieut. Colonel Clarence Renshaw in immediate charge. All construction activities of the Quartermaster Corps were transferred to the Chief of Engineers, U.S. Army, and all officers in the Construction Division, then on duty in that branch, were placed under command of the Chief of Engineers at 12:01 a.m., December 16, 1941, under the Act of December 1, 1941.

Planning and design progressed at great speed under a group of several hundred architects and engineers. The employment of as many as fifteen thousand construction men at one time, working night and day, pushed the job to completion in a period of sixteen months. Six hundred thousand square feet of space was ready for occupancy by April 30, 1942.

No formal dedication ceremonies were held as had been planned, due to the exigencies of the war. Occu-

pation by the using agencies followed closely upon availability of space.

Colonel Renshaw remained as District Engineer of the Arlington District in charge of The Pentagon project until November 25, 1942, when he became District Engineer of the Washington District and completed the work while so assigned.

The Pentagon occupies a site of more than four hundred acres, taking in the area of the old Washington Hoover Airport. It is constructed of reinforced concrete, on concrete pile foundations, five stories high, with a basement and subbasement under some areas. Over seven million cubic yards of earth were moved under the program for the building, parking areas and access roads. The building covers thirty-four acres, has a floor space of four million square feet, with wide ramps to the upper floors in lieu of mechanical lifts. Approximately forty thousand persons are accommodated in the massive structure. Parking space is provided for about ten thousand cars.

Engineering News-Record, Vol. 128, 1942
Engineering News-Record, Vol. 129, 1942
Engineering News-Record, Vol. 130, 1943

REAL ESTATE

Weaving through the pattern of the engineering work in the Washington District office, the legal and technical vagaries of real estate requirements play a prominent part. Acquisition, management, and disposition of real property are necessary needs accompanying the building of structures, depositing of dredged material, reclamation work, temporary occupation of lands, easements -- in fact, real estate operations necessary in private enterprise are present in the work of the Corps of Engineers.

Real estate requirements for civil works have been the function of the District Engineer. For military work, the Quartermaster Corps furnished the necessary assistance up to 1941, when the military phase also became the responsibility of the Corps of Engineers.

Notwithstanding the abundant land holdings of the United States in the District of Columbia and to a lesser extent in nearby States, the Washington District has been active on the real estate front in a substantial way in providing for approaches to bridges, building of the Washington Aqueduct water supply system, Potomac Park, Anacostia Park, Washington National Airport, Mt. Vernon Memorial Highway, and for the many acquisitions, both by lease and by purchase, to meet the military requirements of the Army and the Air Force.

At this time the Washington District is responsible for real estate functions in Delaware, Pennsylvania, Maryland, Virginia, and the District of Columbia for Army and Air Force needs.

Office Files

GERMAN MASTERPIECES OF ART
and
THE GERMAN ROYAL STATE SILVER AND CRYSTAL WARE

The Washington District has had many special assignments in the performance of its missions, of which two are of particular interest because of international significance.

Shortly before the cessation of hostilities in World War II, General George S. Patton's Third Army recovered two hundred and two German Masterpieces from the Merkers salt mine near Erfurt, Germany. These were part of the famous collection of paintings which had been on display in the Kaiser Friedrich Museum in Berlin and which had been removed and stored for safety during the bombardment of Berlin. As a precautionary measure to preserve these paintings for return to the German people at the proper time, they were sent to the United States and stored in the National Gallery of Art in Washington, D. C. An exhibition was held in Washington which aroused so much interest that Congress granted permission to send the paintings on a tour to thirteen selected cities in the United States. Delicate international considerations prompted the utmost care in the preservation and handling of so valuable a collection. Fifty pieces were considered too fragile for the tour and were returned to Germany in 1948.

Checking, packing and shipping of the paintings to the Metropolitan Museum of Art in New York City for the first view on the tour was performed by the Washington Engineer District in cooperation with the curators of the National Gallery of Art, the Department of the Army, and the Kaiser Friedrich Museum of Berlin under the watchful eye of Army guards. The shipment to New York was made by motor van, escorted by a company of military police and State police of each State on the route. Representatives of the Washington District accompanied the shipment to its destination and remained with it until its acceptance by the Metropolitan Museum of Art.

During hostilities in Germany, the 175th Infantry Regiment of the 29th Division seized a collection of German Royal State Silver and Crystal Ware as a prize

of war and brought it back to the United States as regimental property. However, when the trophies were placed on display in the National Guard Armory in Baltimore, Maryland, the United States Customs Service seized them and turned them over to military authorities for return to the rightful owners. The same general procedure was followed by the Washington District in preparing these articles for return to Germany as had been employed in preparing the art treasures for shipment.

Alexandria Gazette, June 13, 1951
National Geographic Magazine, December 1948
Office Files



Armed Forces Institute of Pathology

WALTER REED
ARMY MEDICAL CENTER

The need for a permanent general Army hospital in Washington, D. C. was voiced by Surgeon General Hammond in his annual report for 1862. A medical school and museum was also advocated.

Congress provided money for the Army Medical School established in the building housing the Medical Museum at Seventh and B Streets, Southwest, in 1893. In 1898, the post hospital at Washington Barracks was officially designated as the general Army hospital.

Establishment of the Walter Reed Army Medical Center was made by a War Department order signed by General of the Armies John J. Pershing on September 1, 1923. The Center has been under development at its present site, approximately eight miles north and west of the Capitol. It is situated on a tract of about one hundred and ten acres, bordering the area of the Battle of Fort Stevens during the Civil War. The name of the installation honors Major Walter Reed, who distinguished himself in research on the origin and spread of typhoid and yellow fever during the Spanish-American War era. Forest Glen, Maryland, is a subpost acquired by the Army in 1942.

The construction partnership of the Corps of Engineers and Walter Reed Army Medical Center extends only over the past decade. In that time, however, there have been quite a number of projects to challenge the ingenuity of both the using services and the construction forces.

The Neuro-Psychiatric Ward was remodeled with the patients still in it. An orthopedic shop was built for the manufacture of artificial limbs. This shop included a particularly designed "walking chute" for fitting and "breaking-in" of new limbs. An old dairy barn and silo at Forest Glen Annex were converted to an Aural Rehabilitation Center. Here, whistle signals from a nearby railroad and electronic disturbances from broadcasting stations in the vicinity were kept out of the operational cubicles by suspending them in the form of hermetically sealed, soundproof rooms within rooms. The animal houses constructed demanded some interesting precautions against

chimpanzees in the "Monkey Wings." Special dental, research and hazardous operations laboratories have been included in the construction program.

In the more common run of projects for hospitals, there have been constructed a hostess house, bank, gymnasium, theater, therapeutic swimming pool, broadcasting station, and out-patients clinic.

By far the most absorbing project at Walter Reed, however, is the building now under construction for the Armed Forces Institute of Pathology. This is the first deliberately planned atomic resistant structure in Washington. It is windowless, of heavily reinforced concrete, eight stories high, with three of its floors below ground. Two "expendable" office wings are attached. These are separated from the main core by steel blast doors. The building possesses its own emergency power plant. Almost half of its six and a half million dollar cost is chargeable to mechanical and electrical elements. One of its design engineers had this to say:

"The bomb damage protection, the exclusion of windows, the use of massive exterior walls, the need for high intensity lighting, the heavy heating appliance loads, the variety of activities in the occupied areas, the need for flexibility in the floor plan arrangements, and the introduction of mezzanine floors are features that affect the mechanical and electrical installations. In fact, there are combined in this building all the activities ordinarily found individually in office buildings, research laboratories, hospitals, printing establishments, educational centers and public buildings, plus the extraordinary features of its architectural and structural design."

When completed in 1954, this building will become the permanent repository of valuable pathological records and specimens, as well as the pathological research, consultation and higher education center for the medical services of the Army, Navy, and Air Force and for civilian medical associations.

Office Files

EMERGENCY BRIDGE CROSSINGS

As a gateway between the north and south areas of the United States, bridges crossing the Potomac and Anacostia Rivers gained prominence from a defense standpoint during World War II. Disabling of existing bridges would have had a crippling effect on transportation of persons and property. To guard against sudden catastrophe, an emergency railroad and four highway bridges were constructed by the Washington District.

The railroad bridge made connections with a spur of the Baltimore and Ohio Railroad running along the eastern shore of the Anacostia River to its junction with the main line at Bennings, D. C. From the terminus of the spur at the old ferry landing on Shephard's Point, the bridge crossed to the property of the Bryant Fertilizer Company, Alexandria, Virginia, connecting with the main line of the Southern Railroad and the Richmond, Fredericksburg and Potomac Railroad tracks. Costing two and one half million dollars, it was in operation from 1942 to 1946, carrying military shipments in upwards of twenty-eight trains per day.

This single track bridge was approximately three thousand feet in length. From the District of Columbia side of the river a timber trestle pile bent structure extended for one thousand feet. The next one thousand feet in midstream was composed of steel trusses with a swing drawspan across the navigation channel providing one hundred feet clearance on either side of a pivot pier. Piers were constructed of steel monotube piles with concrete caps and a concrete tremie course at the river bottom. Another one thousand feet of timber trestle supported on wooden piling completed the structure to the Virginia shore. The steel trusses and drawspan were purchased from the Grand Trunk Railroad Company in Michigan where it was disassembled, shipped to Washington and assembled at the bridge site. The bridge was completed to the point of use within a scheduled construction period of six months.

Highway bridges were located over the Potomac River near the Highway Bridge at the foot of Fourteenth Street; across the lower end of Roosevelt Island from the foot of Constitution Avenue; and across Little River and Roosevelt Island to the foot of Wisconsin Avenue. These

structures consisted of piling bents and floating sections, supported by wooden pontoons. The pontoons were sixty-nine feet by twelve feet by five feet and supported double lane bridge sections suitable for vehicles with a total load of fifteen tons. Both the Fourteenth Street Bridge and the Wisconsin Avenue Bridge were opened to general traffic for extended periods.

A fourth bridge crossed the Anacostia River a short distance above the Navy Yard.

These bridges served as a precaution against stoppage of traffic from possible destruction and to relieve the increased traffic over existing bridges. They were guarded day and night by the Military District of Washington and dismantled upon termination of the national emergency.

Office Files



Domiciliary Building, Soldiers' Home

SOLDIERS' HOME

About three miles due north of the Capitol, the Soldiers' Home occupies slightly over five hundred acres of ground heavily wooded in part, with cultivated fields, ten miles of winding driveways and studded with over one hundred structures devoted to the welfare of retired soldiers. A commanding view is afforded of the city, the Potomac River, and the surrounding country. Forming a very lovely park open to the public, it embodies urban and rural features in its attractive setting. Prior to 1951, it boasted a prize herd of two hundred Holsteins and eight thousand chickens, with dairy houses and barns, and the grounds had an atmosphere of the farm which lingered amid a thickly settled community. Greenhouses are maintained for the benefit of the Home. In these surroundings, Presidents Pierce, Buchanan, Lincoln, Hayes, and Arthur took refuge from the summer heat and dust of the city. President McKinley regularly took his afternoon drives through the park roads.

This Home was founded about 1848, largely through the initiative of General Winfield Scott of Mexican War fame, with some of the tribute levied on Mexico. Jefferson Davis, future President of the Confederate States, as head of the Senate Committee on Military Affairs, guided legislation on the undertaking through Congress. The institution has been governed by a Board of Commissioners composed of the Chiefs of Services of the Army and is administered by selected retired Army officers appointed by the President. Funds for its maintenance are derived by assessments against enlisted men and warrant officers of the Regular Army and from court-martial fines, withheld pay, dishonorable discharges and interest on the Trust Fund.

Obsolescence of many of the facilities of the Home during the elapsed hundred years and increasing needs of city traffic prompted a study for rehabilitation and expansion and for provision of through roads to adjacent city thoroughfares.

In 1944, a study was undertaken by the District Engineer, Colonel John M. Johnson, and an estimate prepared for the desired improvements, amounting to approximately thirty-five million dollars. Of this amount,

about fourteen million dollars has been authorized by Congress, under which work was begun in 1948, and is in progress. To provide for future expansion of other government facilities, about one hundred and forty acres of land have been transferred to the General Services Administration as a possible site for an administration building and hospital for the Veterans' Administration and for the District of Columbia Medical Center.

A master plan for an orderly development of new facilities and retirement of antiquated buildings is being directed by the Corps of Engineers under contract with a city planner. The principal features of this plan will comprise new domiciliary buildings to ultimately house about six thousand members, the first element of which is now under construction with an eight hundred fifty-bed capacity. Complementing this increased bed capacity, a program for construction of a new hospital, ward wing, new nurses' home, and an auditorium has been authorized and funds allotted therefor.

The construction of the additional domiciliary building was initiated in 1951, and will be completed for occupancy about August 1953. Some partial occupancy can be secured prior to this time.

The hospital ward wing, nurses' home, and auditorium will be under construction in the summer of 1952 with completion expected about December 1953. A progressive construction program is being included in annual budgets for service of the Home as the population increases.

The transfer of land and approved extension of North Capitol Street through the grounds requires selection of new areas for development of facilities for the officer personnel of the Army, the civilian operating personnel, service facilities such as shops and warehouses, and a relocation in the Grant Building of the administrative facilities of the Home. New roads and increased utilities will be provided.

Roose's Companion and Guide to
Washington and Vicinity, 1882
Rand, McNally and Company's Handy Guide
to Washington and the D. C., 1896, by
Ernest Ingersoll
Manual on the Origin and Development of
Washington by H. Paul Caemmerer, Ph. D., 1939
Office Files

R O S T E R S

OFFICERS OF THE CORPS OF ENGINEERS
WASHINGTON AQUEDUCT

Montgomery C. Meigs, 1852-62	John M. Wilson, 1889
H. W. Benham, 1860	George H. Elliot, 1889-95
J. St. C. Morton, 1860-61	J. G. D. Knight, 1895
N. Michler, 1867-70	Chas. E. L. B. Davis, 1895
George H. Elliot, 1870-71	D. D. Gaillard, 1895-98
O. E. Babcock, 1871-77	Chas. J. Allen, 1896
Thos. Lincoln Casey, 1877-82	Edward Burr, 1898
G. J. Lydecker, 1882-89	Theo. A. Bingham, 1898
A. M. Miller, 1898-1904	

CIVIL CHIEF ENGINEERS, DEPARTMENT OF INTERIOR

Wm. R. Hutton, 1862-63
Silas Seymour, 1863-65
Theodore B. Samo, 1865-67

OFFICERS OF THE CORPS OF ENGINEERS
OFFICE OF PUBLIC BUILDINGS AND GROUNDS

N. Michler, 1867-71
O. E. Babcock, 1871-77
Thos. Lincoln Casey, 1877-81
A. F. Rockwell, 1881-85
John M. Wilson, 1885-89
O. H. Ernst, 1889-93
John M. Wilson, 1893-97
John S. Sewell, 1897
Theo. A. Bingham, 1897-1903
Thos. W. Symons, 1903-04
Chas. S. Bromwell, 1904-09
Spencer Cosby, 1909-13
Wm. W. Harts, 1913-17
Clarence S. Ridley, 1917-21
Clarence O. Sherrill, 1921-26
Ulysses S. Grant, 3d, 1926-33
James A. Woodruff, 1933

OFFICERS OF THE CORPS OF ENGINEERS
WASHINGTON DISTRICT

Peter C. Hains, 1882-91	J. A. O'Connor, 1923-26
Lewis C. Overman, 1891	Brehon Somervell, 1926-30
Thomas Turtle, 1891-92	J. D. Arthur, Jr., 1930-34
Chas. E. L. B. Davis, 1892-96	L. H. Hewitt, 1934
Chas. J. Allen, 1896-1904	John C. H. Lee, 1934
A. M. Miller, 1904	Frank O. Bowman, 1934
W. P. Wooten, 1904	R. W. Crawford, 1934-35
Smith S. Leach, 1904-05	W. J. Matteson, 1935-37
R. L. Hoxie, 1905	R. G. Guyer, 1935
Spencer Cosby, 1905-08	W. D. Luplow, 1937-38
E. J. Dent, 1908	R. S. Thomas, 1938-40
Jay J. Morrow, 1908-10	W. J. Barden, 1940-42
Warren T. Hannum, 1910	D. A. Phelan, 1942
W. C. Langfitt, 1910-14	Clarence Renshaw, 1942-44
H. C. Newcomer, 1914-15	John M. Johnson, 1944-45
C. W. Kutz, 1914	D. G. White, 1945-48
H. F. Hodges, 1915	John W. Califf, ACTING, 1948
C. A. F. Flagler, 1915-17	Henry C. Wolfe, 1948-50
W. L. Fisk, 1917-19	H. R. Davis, ACTING, 1950
M. C. Tyler, 1919-23	Alan J. McCutchen, 1950-53

